First Revision

ARCHIVEXEMPLAR

TC-666D

USA Model

Original

SPECIFICATIONS

Power Requirement: AC 117V, 60Hz 140W

Track System: Four-track stereo

Reel Size: 7" maximum

Tape Speed: 7½ ips and 3¾ ips
(19 cm/s and 9.5 cm/s)

Recording Time: (with 1,800 ft tape)

Tape speed	4-track stereo	4-track mono
7½ ips (19 cm/s)	1.5 hrs	3 hrs
3¾ ips (9.5 cm/s)	3 hrs	6 hrs

Frequency Response: 20~21,000 Hz at 7½ ips (19 cm/s)
20~15,000 Hz at 3¾ ips (9.5 cm/s)

Signal-to-Noise Ratio: 53 dB (at peak record level)

Flutter and Wow: 0.15% at 7½ ips (19 cm/s)

Recording Bias Frequency: Approx. 160 kHz

Inputs: Two MIC inputs
Impedance; 600Ω
Maximum sensitivity; 0.19 mV (-72 dB)
Two AUX INputs
Impedance; 100 kΩ
Maximum sensitivity; 61 mV (-22 dB)

Outputs: Two LINE OUTputs
Impedance; 100 kΩ
Output level; 0.775 V (0 dB)
HEADPHONE outputs
Impedance; 8Ω
Output level; 28 mV (-29 dB) ····· HIGH
10 mV (-38 dB) ····· LOW

Semiconductors: 32 transistors and 19 diodes

Dimensions: 17 3/16 (W) x 8 1/16 (H) x 16 5/8" (D)
(436 x 204 x 423 mm)

Weight: 48 lb 8 oz (22 kg)

Original

SONY®

SERVICE MANUAL

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Note:
The following have been modified for the sets with serial No. 50,001 and later:
(1) A part of the tape transport circuit to decrease the heat produced by the plungers and the motors.
(2) A part of the power supply and bias osc. circuit to decrease the fluctuations of the power voltage caused by changing the modes.

1. GENERAL DESCRIPTION

SONY Model TC-666D is a three motor, four track stereo tape recorder featuring ESP (Electronic Sensory Perception) automatic reverse system and SONY automatic noise reduction circuit (SNR).

2. TECHNICAL FEATURES

2-1. Tape Transport Mechanism

Tape transport mechanism consists essentially of a hysteresis synchronous capstan motor, two spooling motors, four solenoids, a drive belt, a flywheel and a motor pulley.

Three modes (PLAY, FAST FORWARD and REWIND) can be selected electrically by means of the respective function selector buttons (1), (2), (3), (4) located conveniently on the reel panel. The capstan (5) can be started by pushing the power switch (S304) ON. Operating "PLAY" button (1) energizes the pinch roller solenoid (PM502) and brake solenoid (PM501) (which releases the brakes), causing the plunger (6) of the pinch roller solenoid to pull the pinch lever to bring the pinch roller (7), thus engaging the capstan and pinch roller to drive the tape.

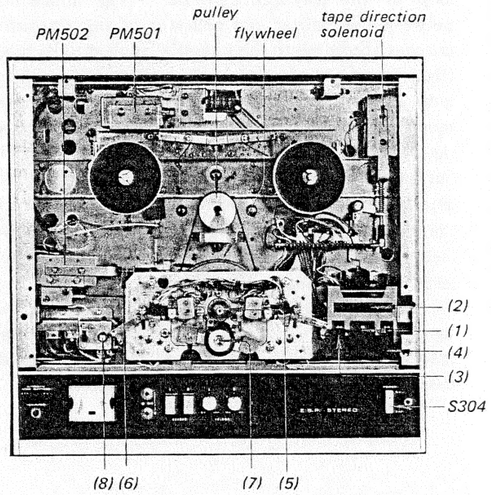


Fig. 2-1 Tape transport mechanism

Proper take-up tension and back-torque (or hold back tension) are applied to the tape by the spooling motors. Necessary electrical current to the motors is adjusted by a semi-fixed resistor (R501) and switches by the direction change switch (S506).

When S506 is flipped to "REVERSE" position (◀), the capstan motor starts to rotate in the opposite direction to reverse tape direction slightly before the spooling torque is changed. By applying the instant stop button (8), the brake solenoid (PM501) and pinch roller solenoid (PM502) are de-energized to retract their plungers and hold the reel tables and release the pinch roller from the capstan.

2-2. ESP (Electronic Sensory Perception) Automatic Reverse System

In the Forward Playback mode with automatic reverse switch placed ON, tape transport reverses automatically within approximately 8 seconds after modulations on track 3 and 4 stop.

ESP circuit constantly scans the recorded signals on track 4 from the head and on track 3 from the line output of right channel.

The following is the block diagram of the ESP reverse circuit:

When the recorder is turned on and starts to play a leading part (no recorded sound) of the tape, Q404 of the flip-flop circuit is turned "ON" and Q405

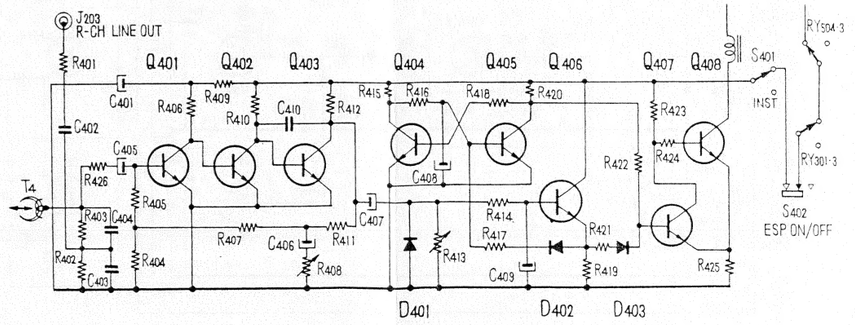


Fig. 2-2 ESP reverse circuit

remains in "OFF" condition because of a slight delay of voltage built-up time at the base of Q405 due to the capacitor C408. The "OFF" condition of Q405 supplies a higher voltage to the base of Q407 through R422, thus locking the Schmidt trigger circuit (Q407 and Q408) to close until signal recorded on tape turns "ON" Q405. This locking of the Schmidt trigger by a flip-flop circuit is necessary in order to avoid tape reverse when the leading part of a tape is longer than the pre-determined reversing delay time. When signal is recorded on either track 3 or track 4, it is amplified by the transistors Q401, Q402 and Q403, rectified and clamped by D401 and Q406. The output at the emitter of Q406 is supplied to the base of Q405 to turn it on, thus decreasing the voltage supplied to the base of Q407 through R422. The output at the emitter of Q406 is in turn fed to the base of Q407 to keep Q408 "OFF".

After the above sequence of operation, when there is no recording on both tracks 3 and 4 for more than a pre-determined period, voltage at the base of Q407 decreases and, consequently, the voltage at the base of Q408 increases to activate the solenoid which reverses the tape direction. Once the reversing is completed, the power to the ESP circuit is turned off.

The threshold of the reverse triggering is controlled by R408 and the delay time of the reverse is controlled by R413.

2-3. Noise Reduction Circuit

The purpose of the noise reduction system is to reduce noise --- hiss, hum, as examples --- that normally arise in the tape recording and playback process. Generally, means to reduce high frequency noise may be divided into two methods. One is to cut-off high frequencies and the other to expand dynamic range. The SNR (SONY Noise Reduction System) is based on the latter method, in which high level signals are emphasized and low level signals are de-emphasized.

In short, the SONY noise reduction system is designed to decrease the gain of playback amplifier when its output becomes below a certain level. The output of the playback amplifier is introduced to a separate amplifier through a L-pad. The output of this amplifier (Q601, Q602) is then rectified and supplied to the base of a transistor (Q604), the emitter and collector of which are connected across the equalization negative feed-back loop of the playback amplifier. The impedance between the emitter and collector of this transistor changes according to the potential applied to its base. High output level from the playback amplifier induces higher potential to the base of the transistor, thus decreasing the amount of negative feed-back in the equalizer amplifier to increase its gain. When the output from the playback amplifier is below the pre-determined level (approximately 30 dB below 0 VU), the impedance across the equalizer amplifier negative feed-back loop increases, thus decreasing the output level of the playback amplifier.

Below this threshold point, level of both the signal and noise is decreased by the same amount (approximately 6 dB) giving more decrease of loudness in higher frequencies to human ears.

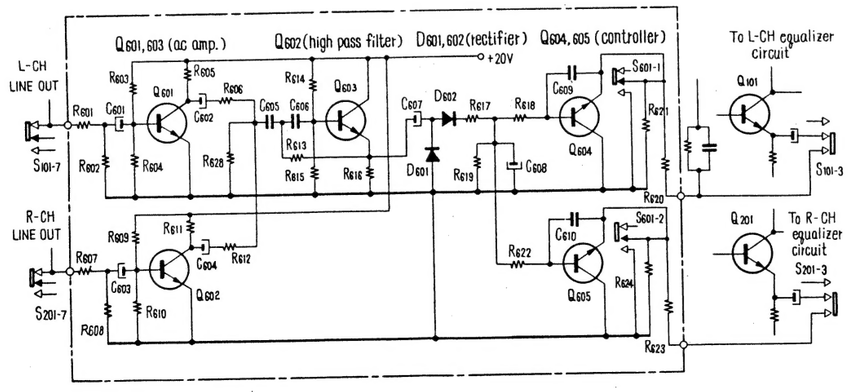
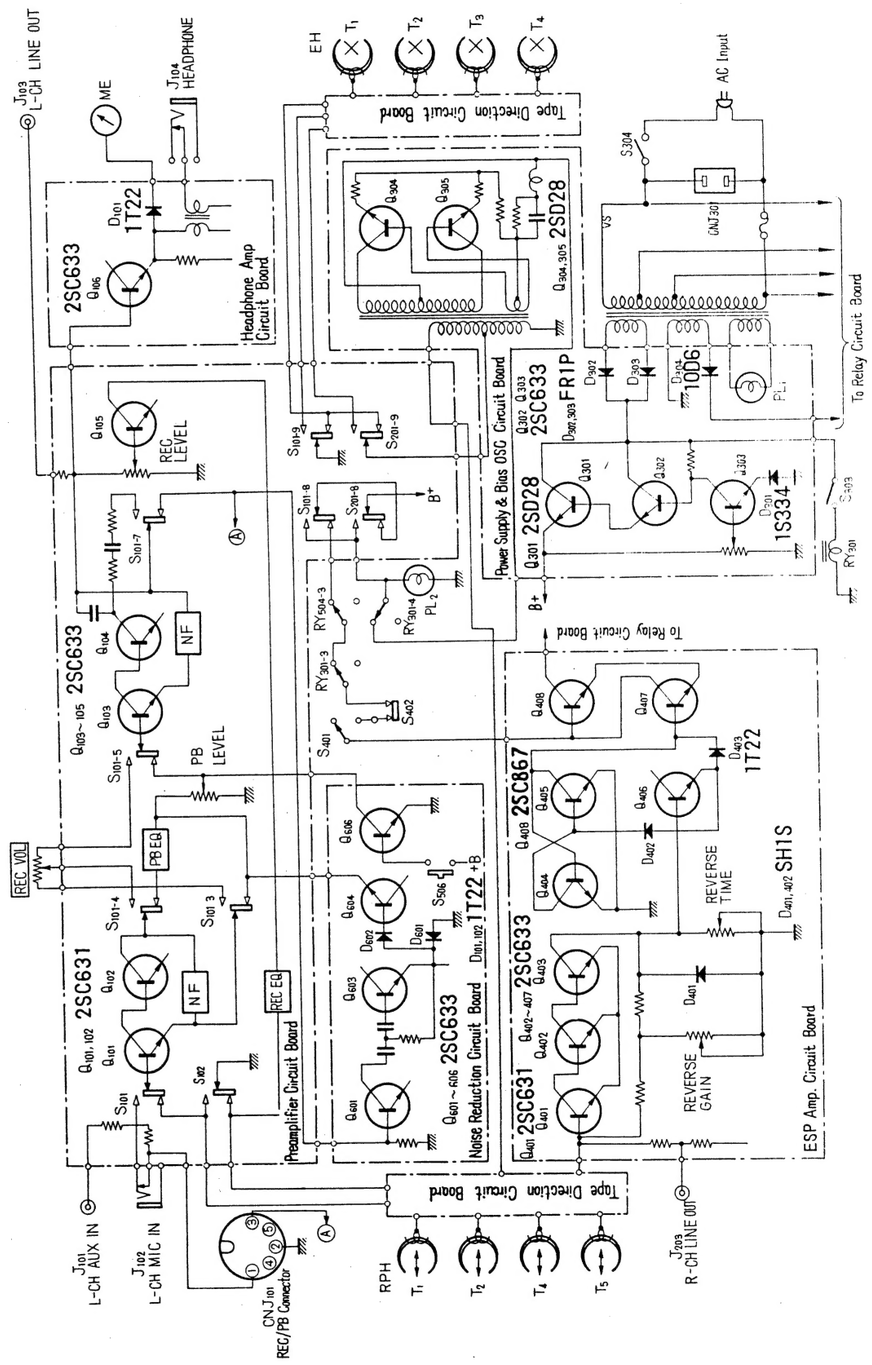


Fig. 2-3 Noise reduction circuit

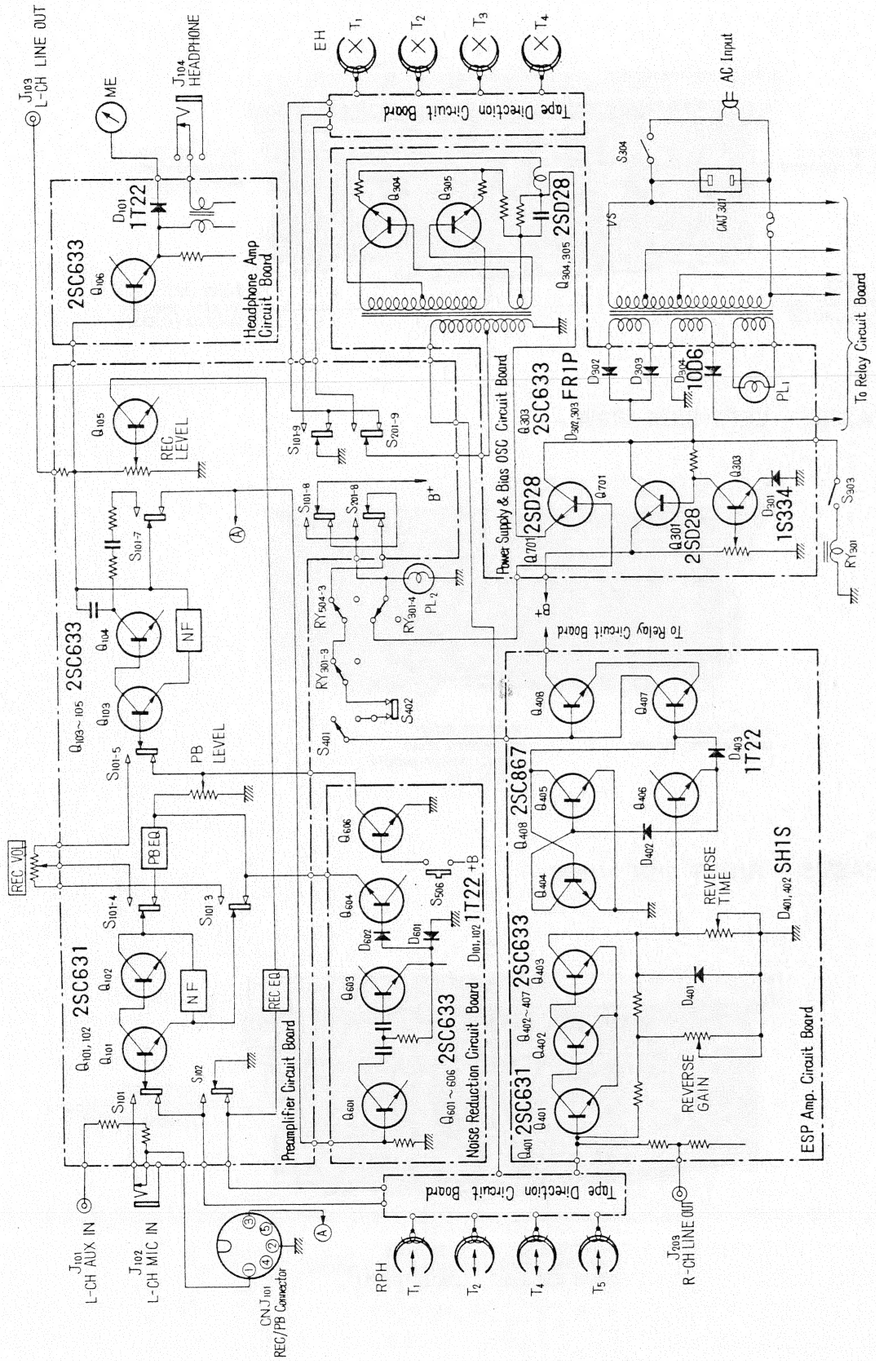
3. BLOCK DIAGRAM

Up to Serial No. 50,000

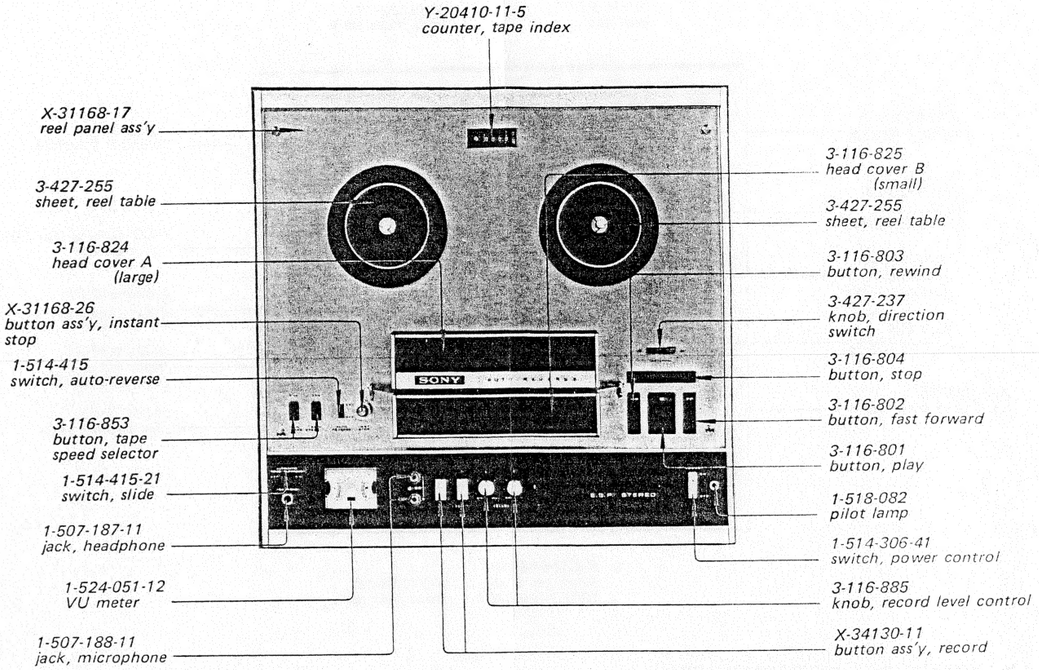


3. BLOCK DIAGRAM

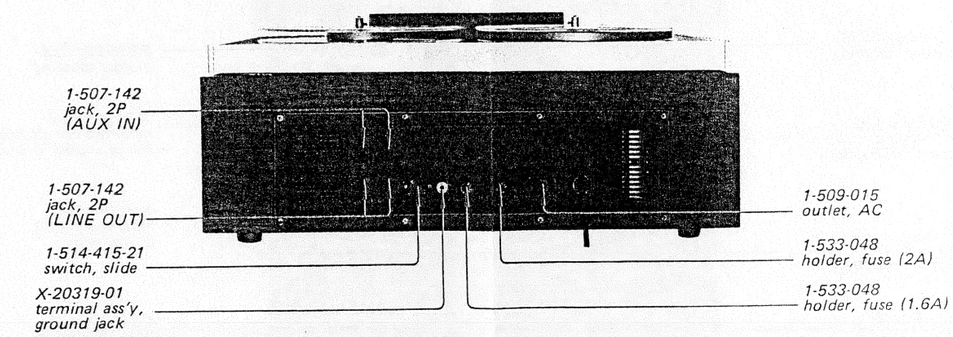
Serial No. 50,001 and later



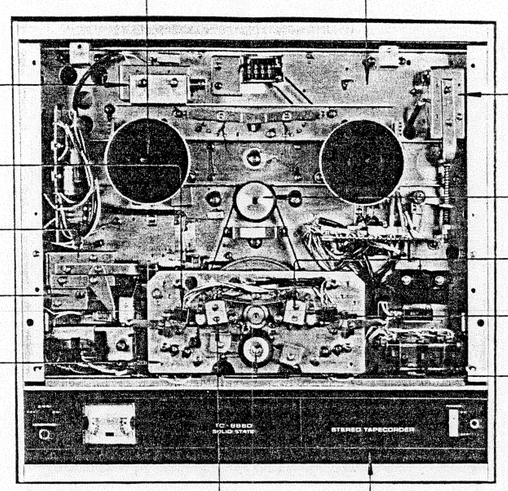
4. CABINET — TOP VIEW —



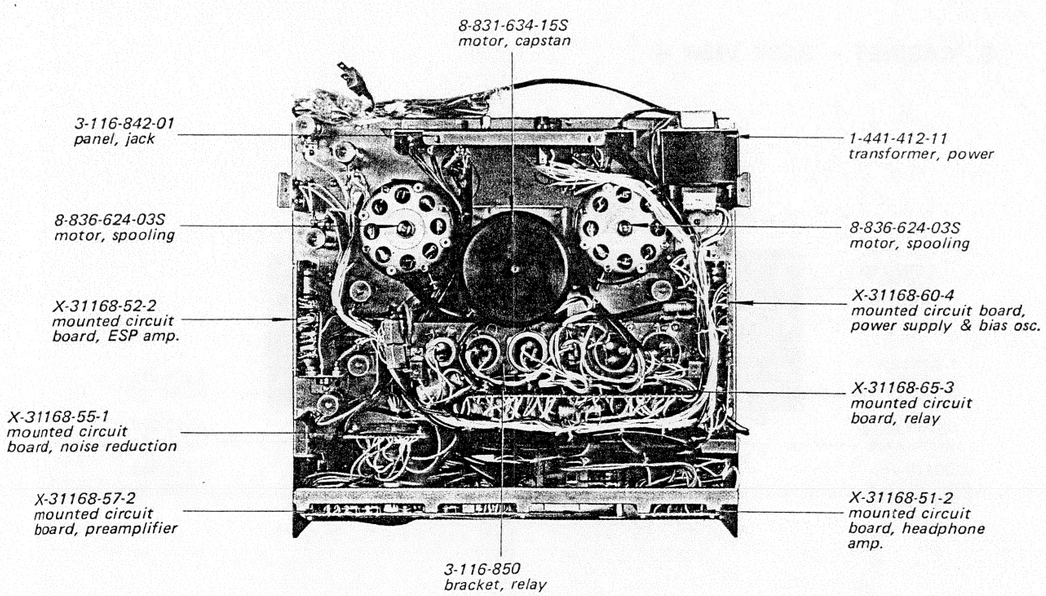
5. CABINET — BACK VIEW —



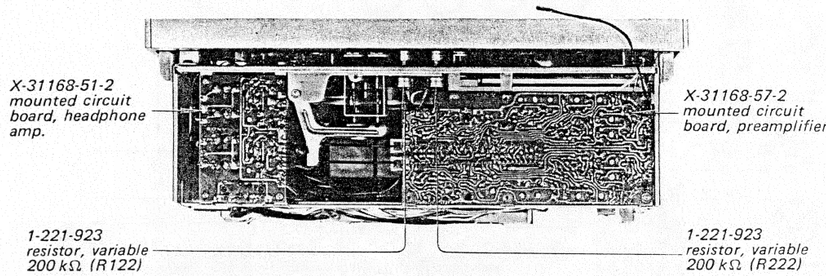
6. CHASSIS – TOP VIEW –



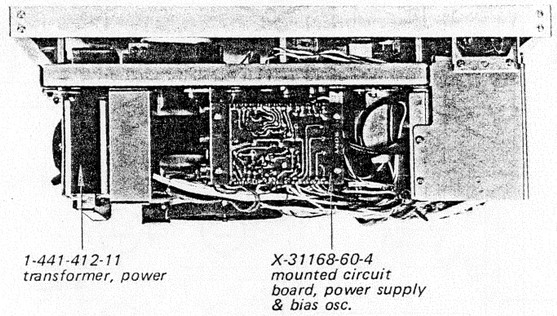
7. CHASSIS – BOTTOM VIEW –



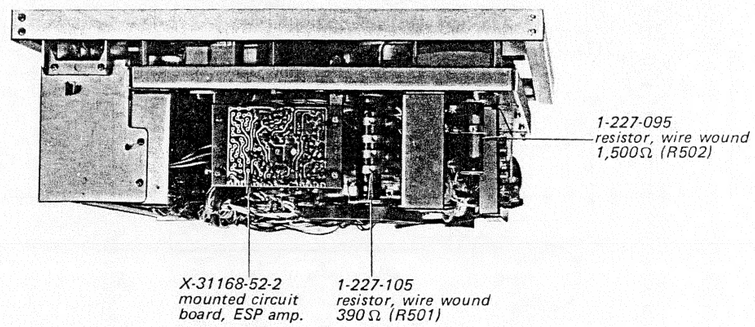
8. CHASSIS – FRONT VIEW –



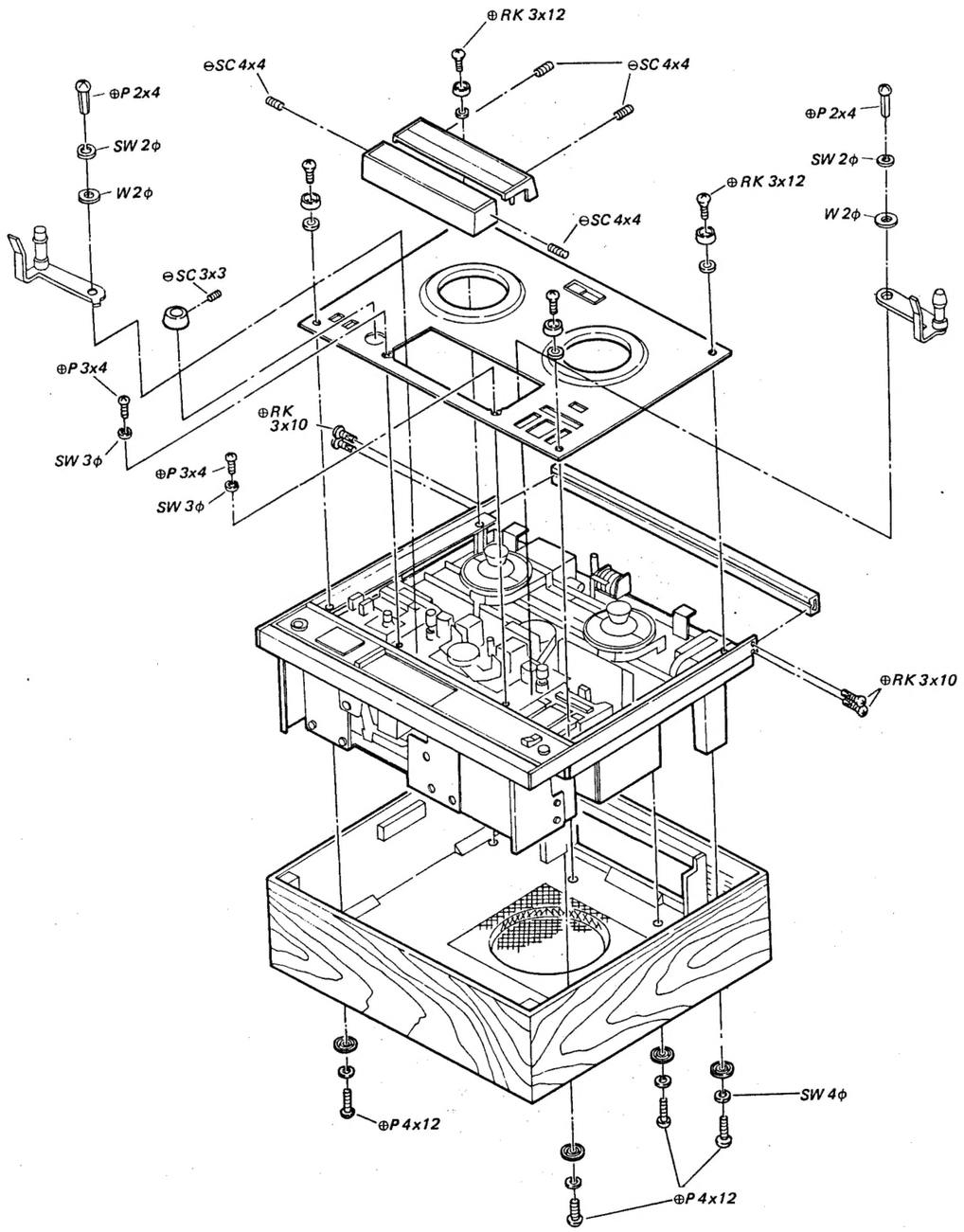
9. CHASSIS – LEFT SIDE VIEW –



10. CHASSIS – RIGHT SIDE VIEW –



11. DISASSEMBLY



12. MECHANICAL ADJUSTMENT

12-1. Pinch Roller Pressure Adjustment in PLAY mode

1. Pull spring scale gradually, and pinch roller will stop rotating.
2. Adjust the pressure by turning the adjusting nut so that the spring scale shows within the range of approx. 86 oz (2.5 kg) ±9 oz (255 g).

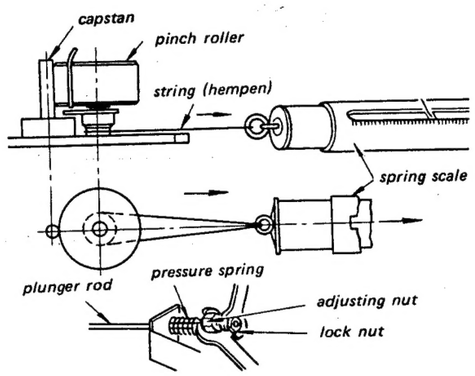


Fig. 12-1

12-2. Brake Band Adjustment in STOP mode

1. Take off the right and left reel tables and table sheets.
2. There should be a clearance of approximately 1 mm (3/64") between brake drum and felt.
3. Adjust by positioning brake band stopper and then tighten the screws, Ⓐ and Ⓑ, so that the 1 mm (3/64") clearance can be obtained.
4. Loosen the brake lever adjusting screws and adjust the brake solenoid position so that the brake levers (A) and (B) align when pushing the plunger pole with finger into the solenoid.

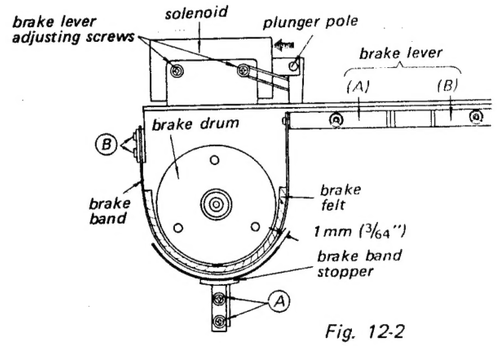


Fig. 12-2

12-3. Brake Adjustment in STOP mode

Adjust the torques by hooking adjusting spring on each tab.

Reading on Scale	Torques
10.3 ~ 17 oz	12 ~ 15 oz·inch
363 ~ 500g	900 ~ 1,100g·cm

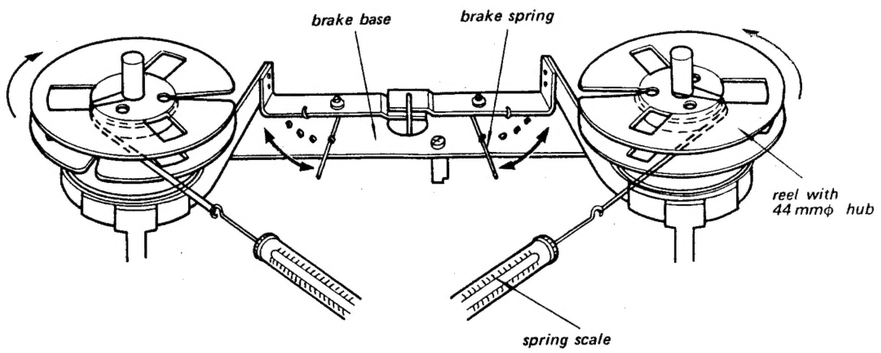
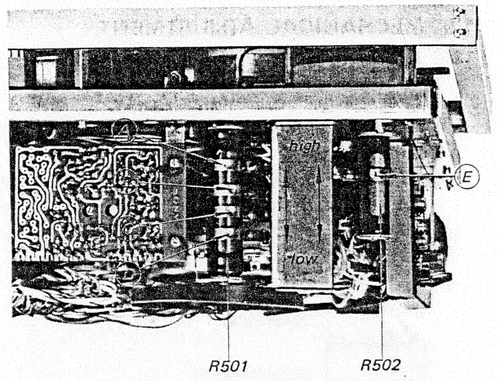


Fig. 12-3

12-4. Spooling Motor Torque Adjustment

1. Pull spring scale with steady motion when measuring holdback tension.
   Allow the spring scale to move toward reel when measuring take-up torque.
2. Take the reading while the scale is in motion.



Ⓐ−Ⓔ, sliding band

Fig. 12-4

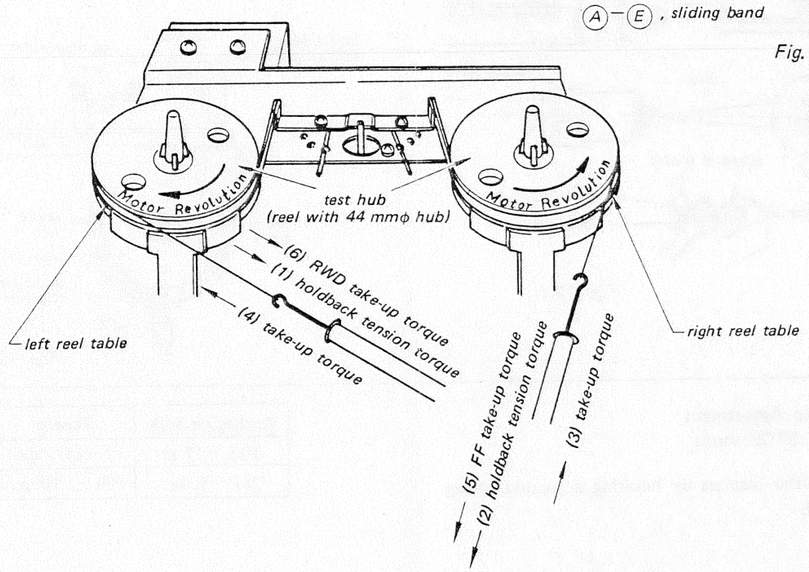


Fig. 12-5

The adjustment should be made in the sequence.

		Reel Table	Sliding Band	Torque	Reading on Scale	Mode
1	Holdback	Left	b	2.8 ~ 3.5 oz·inch 200 ~ 250 g·cm	3.2 ~ 3.9 oz 91 ~ 113 g	PLAY
2		Right	d.			
3	Take-up	Right	a	4.1 ~ 4.9 oz·inch 300 ~ 350 g·cm	4.8 ~ 5.6 oz 136 ~ 159 g	PLAY
4		Left	c			
5	Take-up	Right	e	1.1 ~ 1.4 oz·inch 80 ~ 100 g·cm	1.3 ~ 1.7 oz 37 ~ 46 g	FF
6		Left				RWD

12-5. Auto-Shut-Off Switch Timing Adjustment in STOP mode

1. There should be a gap of approximately 0.2 mm (1/64") at stopper when a click sound can be heard by moving tention arm.
2. Adjust the timing by positioning the switches.

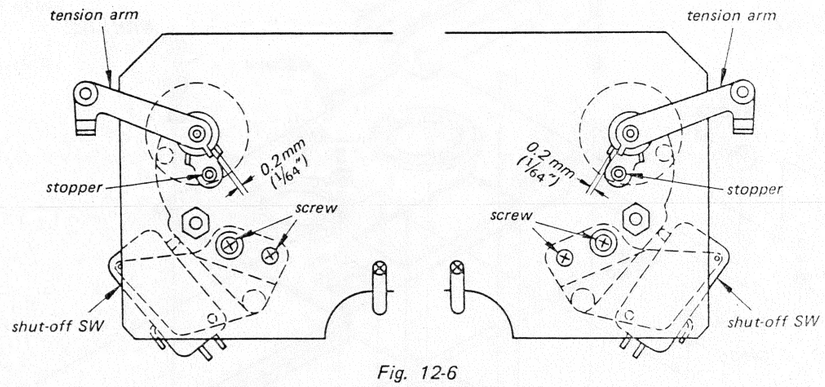


Fig. 12-6

12-6. Direction Change Lever-SW Adjustment in STOP mode

1. There should not be any play of direction change lever when plunger pole pushed into solenoid with finger.
   Adjust by turning the nuts.
2. Direction change lever should smoothly move leftward and rightward.
   Adjust by sliding stopper.

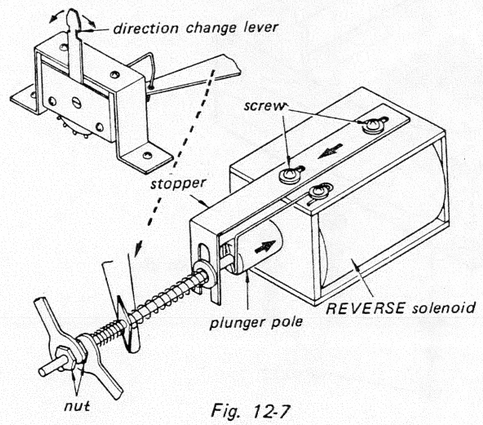


Fig. 12-7

12-7. Record Mechanism Adjustment in STOP mode

1. Loosen a screw Ⓐ and two allen type screws.
2. Move the stopper Ⓐ so that the plunger pole Ⓐ is pushed into solenoid to the limit. Then tighten screw Ⓐ
3. Push the record lever Ⓐ in the direction shown with arrow and tighten two allen type screws.
4. Adjust the position of joint by turning the nuts to obtain a space of approximately 5 mm (13/64") between record lever Ⓑ and joint.
5. Slide the lock solenoid by loosening two screws Ⓑ to obtain a space of approximately 1 mm (3/64") between record lever Ⓑ and joint when pressure rod is pushed into solenoid with finger.
6. Loosen screw Ⓐ and tighten it where plunger pole Ⓐ is out to the limit.

Note:

1. Record buttons can not be locked in PLAY mode.
2. Record buttons can be locked in STOP, RWD and FF mode.
3. STOP, RWD and FF buttons should not be locked in RECORD mode.
   If not, repeat the adjustment.

13. ELECTRICAL ADJUSTMENT

<table>
<tr><th>Item</th><th>Signal Source</th><th>Output Connection</th><th>Mode</th><th>Adjust</th><th>Remarks</th></tr>
<tr><td>1. B+ Voltage Adjustment</td><td>————————</td><td>VTVM across check point and ground. See Fig. 13-1.</td><td>STOP</td><td>R307 See Fig. 13-4</td><td>Adjust to obtain 20 volts on VTVM.</td></tr>
<tr><td>2. Playback Head Azimuth Adjustment</td><td>10 kHz, 3rd tone of SONY adjustment tape, J-19-F2</td><td>VTVM and 100 kΩ resistor in parallel with LINE OUT jack.</td><td>PLAYBACK</td><td>Playback head azimuth adjusting screw
See Fig. 13-3</td><td>Adjust the screw to obtain the maximum on VTVM.</td></tr>
<tr><td>3. Playback Level and Meter Level Adjustment</td><td>1 kHz, 1st tone of SONY adjustment tape, J-19-F2</td><td>VTVM and 100 kΩ resistor in parallel with LINE OUT jack.</td><td>PLAYBACK</td><td>L-CH R124, 149 } (FWD)
R-CH R224, 249 }
L-CH R125, R-CH R225 (REV)
See Fig. 13-2</td><td>1. Adjust R124 (L) and R224 (R) to obtain 0 dB (0.775 V) on VTVM.
2. Adjust R149 (L) and R249 (R) so that VU meters indicate 0 VU.
3. In REV- PLAYBACK mode, adjust R125 (L) and R225 (R) to obtain 0 dB (0.775 V) on VTVM.</td></tr>
<tr><td>4. Playback Equalizer Adjustment
(1) 7½ ips
(19 cm/s)</td><td>SONY adjustment tape, J-19-F2</td><td rowspan="2">VTVM and 100 kΩ resistor in parallel with LINE OUT jack.</td><td rowspan="2">PLAYBACK</td><td>L-CH R118, R-CH R218 (FWD)
L-CH R117, R-CH R217 (REV)
See Fig. 13-2</td><td>Deviation against the level of 1 kHz of 2nd tone.
<table>
<tr><td>Tape tone</td><td>3rd</td><td>4th</td><td>5th</td><td>6th</td><td>7th</td></tr>
<tr><td>Frequency</td><td>10 kHz</td><td>12.5 kHz</td><td>7 kHz</td><td>100 Hz</td><td>50 Hz</td></tr>
<tr><td>L-CH</td><td rowspan="2">0 ± 2 dB</td><td rowspan="2">0 ± 2 dB</td><td rowspan="2">0 ± 2 dB</td><td>3.0 ± 2 dB</td><td>2.0 ± 2 dB</td></tr>
<tr><td>R-CH</td><td>3.5 ± 2 dB</td><td>2.0 ± 2 dB</td></tr>
</table>
After the adjustment, repeat the meter level adjustment.</td></tr>
<tr><td>(2) 3¾ ips
(9.5 cm/s)</td><td>SONY adjustment tape J-9-F1</td><td>L-CH R119 } (FWD)
R-CH R219 }
See Fig. 13-2</td><td>Deviation against the level of 500 Hz of 3rd tone.
<table>
<tr><td>Tape tone</td><td>4th</td><td>5th</td><td>6th</td><td>7th</td></tr>
<tr><td>Frequency</td><td>5 kHz</td><td>3 kHz</td><td>200 Hz</td><td>100 Hz</td></tr>
<tr><td>L-CH</td><td rowspan="2">0 ± 2 dB</td><td rowspan="2">0 ± 2 dB</td><td>2.0 ± 2 dB</td><td>0.5 ± 2 dB</td></tr>
<tr><td>R-CH</td><td>2.5 ± 2 dB</td><td>1.0 ± 2 dB</td></tr>
</table></td></tr>
<tr><td>5. Bias Adjustment</td><td>1 kHz, -60 dB (0.78 mV) to MIC IN jack</td><td>VTVM and 100 kΩ resistor in parallel to LINE OUT jack.</td><td>RECORD & PLAYBACK</td><td>L-CH C133, R-CH C233 (FWD)
L-CH C134, R-CH C234 (REV)
See Fig. 13-2</td><td>1. Place the set in RECORD mode.
2. Connect the VTVM across the REC/P.B. head and turn the trimmer capacitor slowly clockwise to obtain approximately 30 V on the VTVM.
3. Deliver the signal and set REC VOL (R122, 222) so that the VTVM connected to LINE OUT jack indicates 0 dB (0.775 V).
4. Record the signal on a blank tape.
5. Play back the signal and remember the LINE OUT level on the VTVM.
6. Turn the trimmer capacitor clockwise a little, repeat the steps 4 and 5, and make sure that the LINE OUT level is higher.
7. Repeat the steps 4 and 5 until the LINE OUT level begins to drop.</td></tr>
<tr><td>6. Trap Coil Adjustment</td><td>————————</td><td>VTVM and 100 kΩ resistor across check point and ground. See Fig. 13-1.</td><td>RECORD</td><td>L-CH L101, 104
R-CH L201, 204
See Fig. 13-2</td><td>1. Set REC VOL (R122, 222) to minimum position.
2. Adjust L104 and L204 to obtain minimum readings on VTVM.
3. Set REC VOL (R122, L-CH) to MAX position with REC BUTTON (L-CH) pressed.
4. Adjust L201 to obtain minimum reading on VTVM of R-CH.
5. Adjust L101 in the same way of steps 3 and 4.</td></tr>
<tr><td>7. Record Level Adjustment</td><td>1 kHz, -60 dB (0.78 mV) to MIC jack</td><td>VTVM and 100 kΩ resistor in parallel to LINE OUT jack.</td><td>RECORD & PLAYBACK</td><td>L-CH R137, R-CH R237 (FWD)
L-CH R138, R-CH R238 (REV)
See Fig. 13-2</td><td>1. Set REC VOL (R122, 222) so that the VU meters indicate 0 VU.
2. Record the signal on a blank tape and play back it.
3. Repeating step 2, adjust the semi-fixed resistors to obtain 0 dB (0.775 V) on VTVM in PLAYBACK mode.</td></tr>
<tr><td>8. Record Equalizer Adjustment</td><td>20 kHz, -80 dB (0.078 mV) to MIC jack</td><td>VTVM and 100 kΩ resistor across check point and ground. See Fig. 13-1.</td><td>RECORD</td><td>L-CH L103
R-CH L203
See Fig. 13-2</td><td>1. Set REC VOL (R122, 222) so that the VU meters indicate 80%.
2. Adjust L103 and L203 to obtain maximum readings on VTVM.
3. Make Record Level Adjustment again.</td></tr>
<tr><td>9. E. S. P. Adjustment</td><td>500 Hz, -10 dB (0.75 V)
-46 dB (3.8 mV)
to R-CH LINE OUT jack</td><td>————————</td><td>PLAYBACK (FWD)</td><td>R408 (sensitive adj.)
R413 (time adj.)
See Fig. 13-5</td><td>1. Deliver 500 Hz signal of -10 dB (0.25 V) to R-CH LINE OUT jack and after a few seconds change the level to -46 dB (3.8 mV).
2. (1) Adjust R408 so that the machine will reverse within 15 seconds.
(2) When the input level is changed to -45 dB (4.2 mV), the machine will not reverse.
3. Deliver -10 dB (0.25 V) in the same way. Adjust R412 so that the machine will reverse at 8 seconds after the signal off.</td></tr>
</table>

Note:

1. The adjustments should be made in numerical sequence.
2. The adjustments should be performed in the tape speed of 19 cm/sec (7½ ips), unless otherwise specified.
3. After adjustment, apply lock paint to the adjusted parts.
4. The following test equipment is to be provided for these adjustments.

   Audio Generator
   Attenuator (600 ohms)
   VTVM
   100-k ohm Resistor
   SONY adjustment tape J-19-F2, J-9-F1
   Blank Tape
5. Bias voltage across heads shall be measured with the following values on VTVM.

   REC/P.B. Head : Approx. 30～40 Volts
   Erase Head : Approx. 80～90 Volts

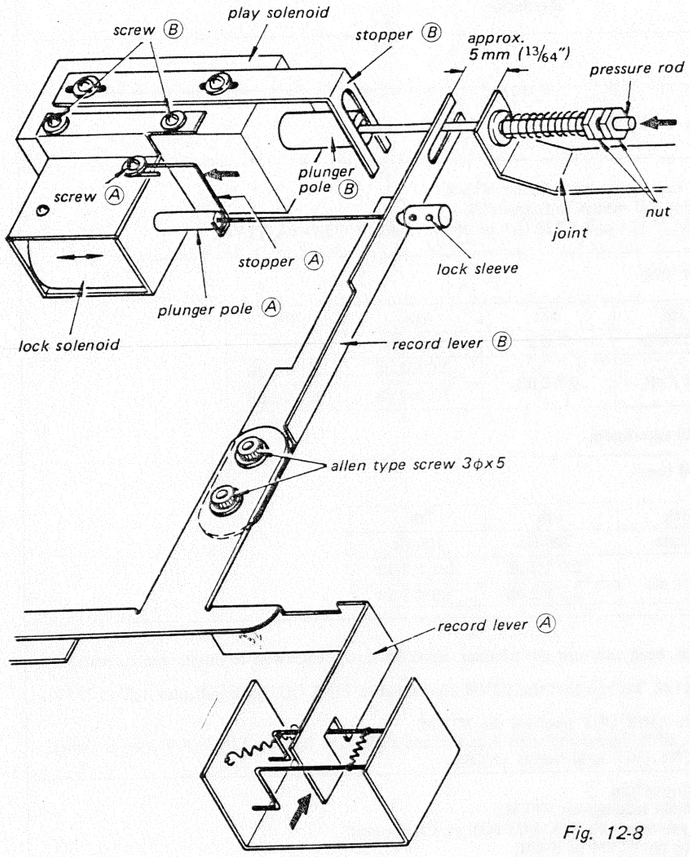


Fig. 12-8

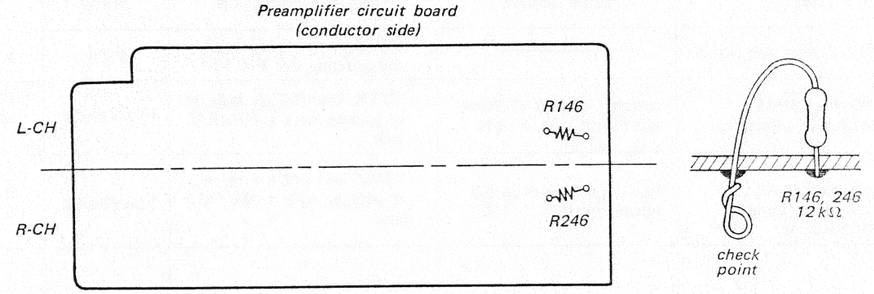


Fig. 13-1

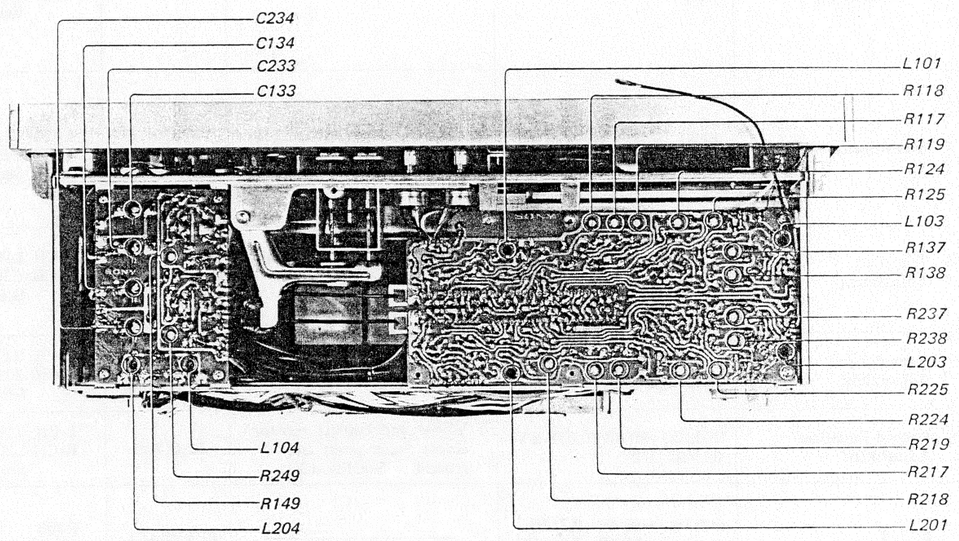


Fig. 13-2 Adjusting parts location

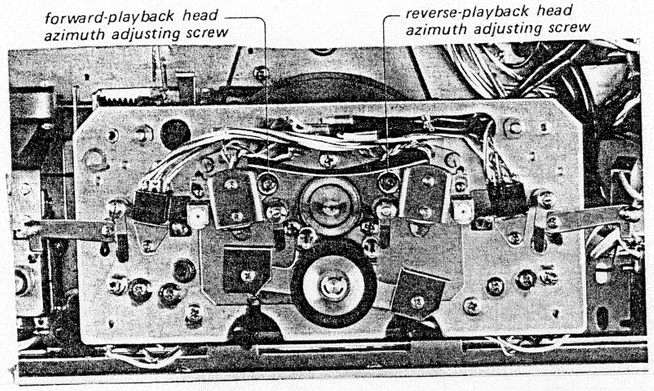


Fig. 13-3

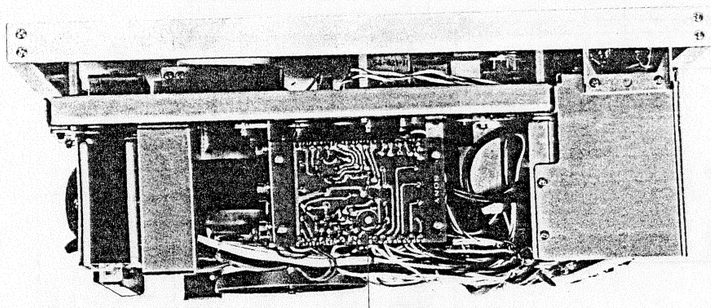


Fig. 13-4

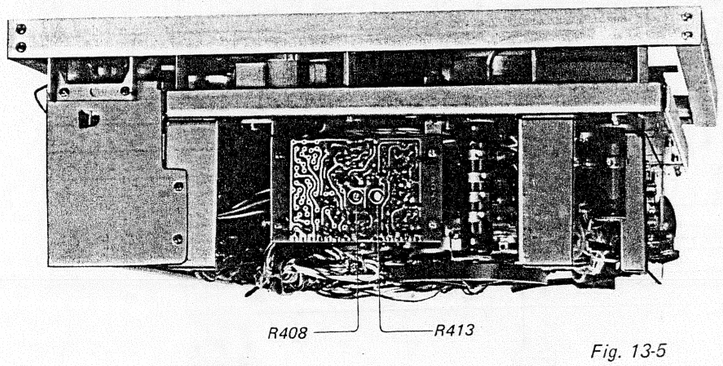
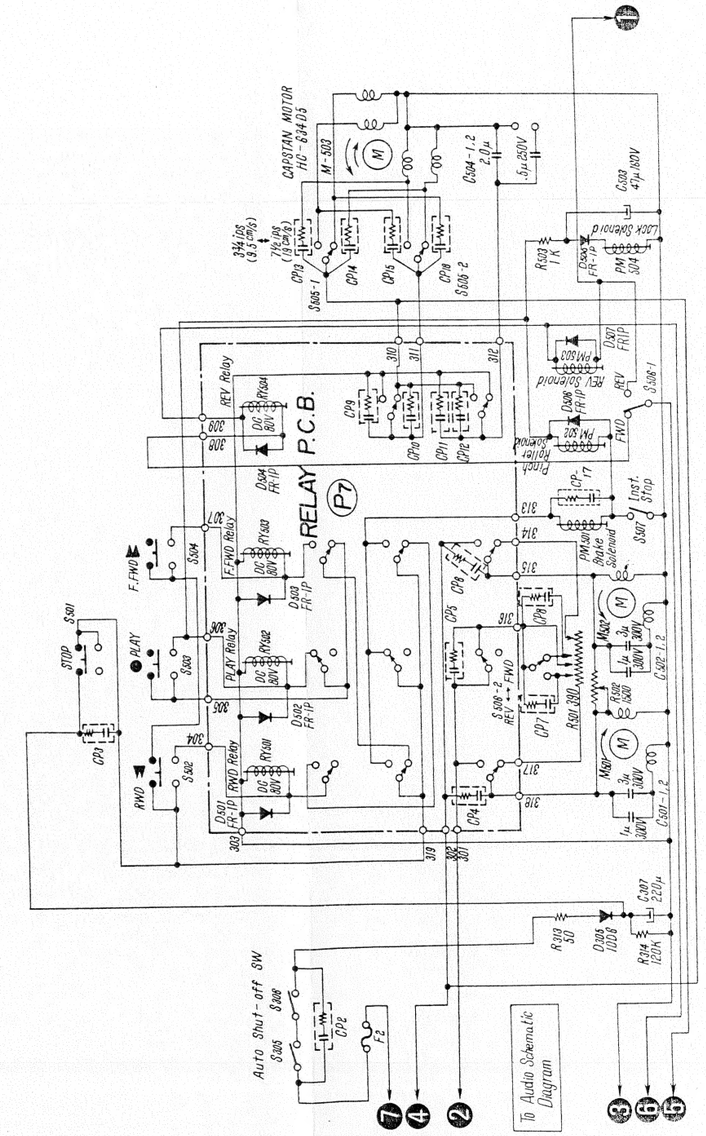


Fig. 13-5

14. SCHEMATIC DIAGRAM

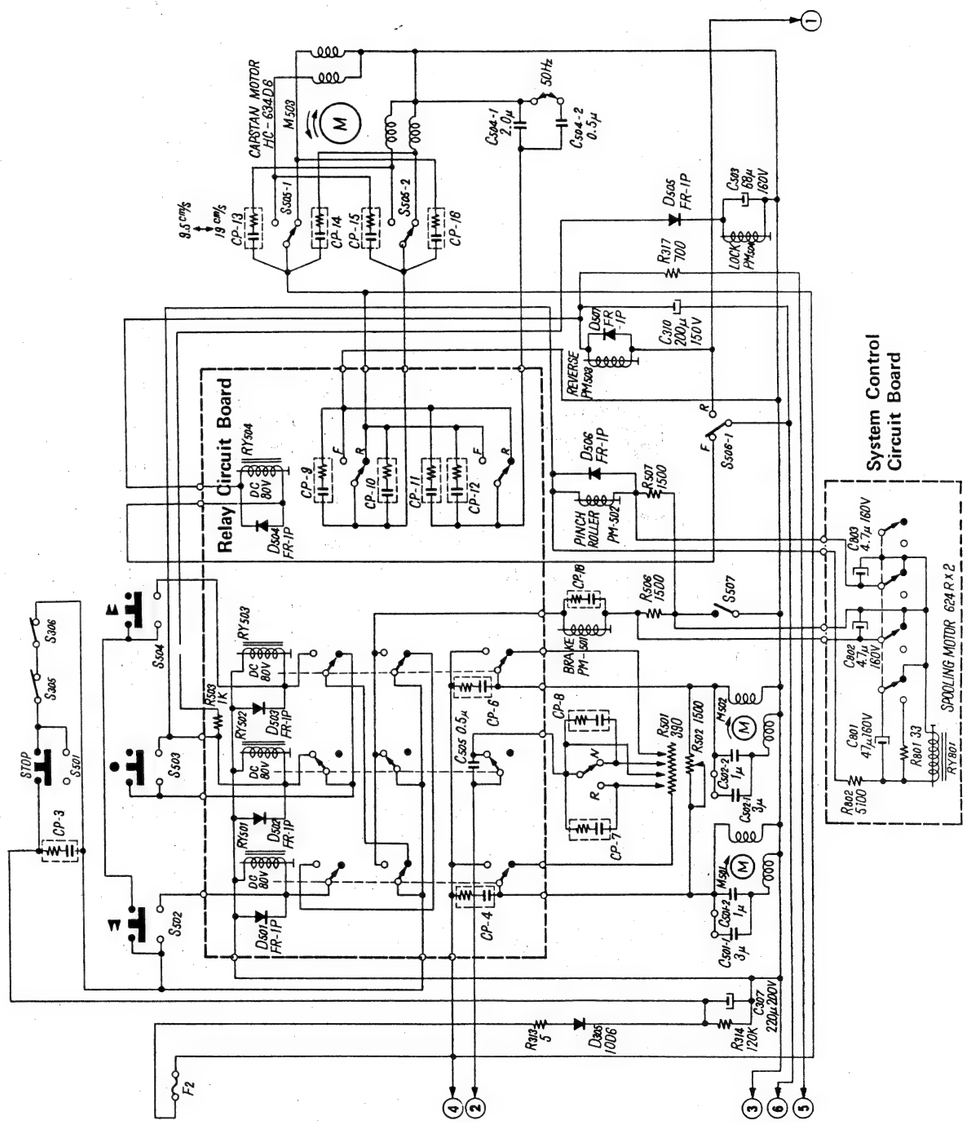
14-1. Tape Transport Circuit

Up to Serial No. 50,000



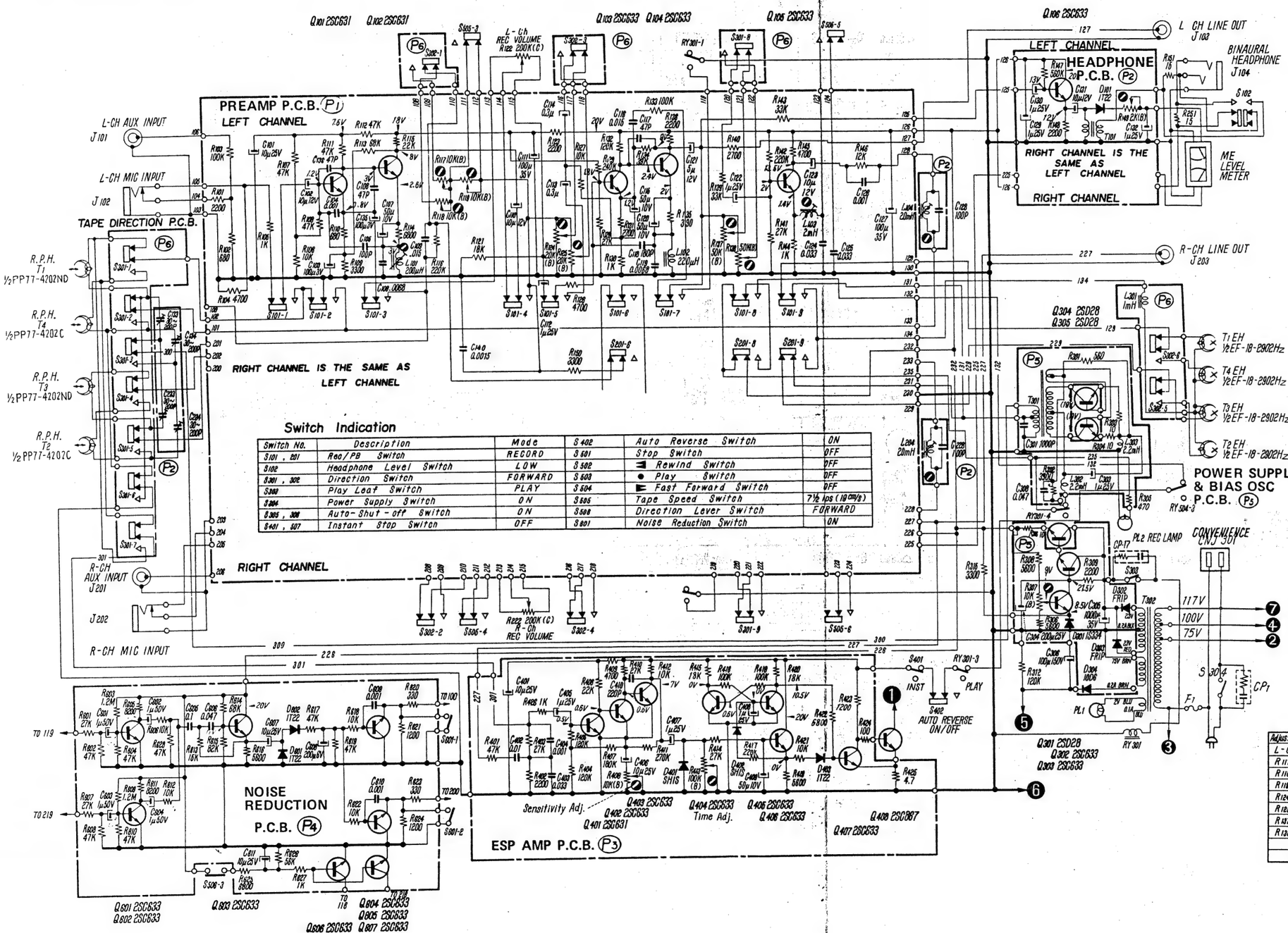
14-1. TAPE Transport Circuit

Serial No. 50,001 and later



14-2. Preamplifier Circuit

Up to Serial No. 50,000



Switch Indication

Switch No.	Description	Mode	Switch No.	Description	Mode
S101, 201	Rec/PB Switch	RECORD	S402	Auto Reverse Switch	ON
S102	Headphone Level Switch	LOW	S501	Stop Switch	OFF
S301, 302	Direction Switch	FORWARD	S502	◀◀ Rewind Switch	OFF
S303	Play Leaf Switch	PLAY	S503	● Play Switch	OFF
S304	Power Supply Switch	ON	S504	▶▶ Fast Forward Switch	OFF
S305, 306	Auto-Shut-off Switch	ON	S505	Tape Speed Switch	7½ ips (19 cm/s)
S401, 501	Instant Stop Switch	OFF	S506	Direction Lever Switch	FORWARD
			S601	Noise Reduction Switch	ON

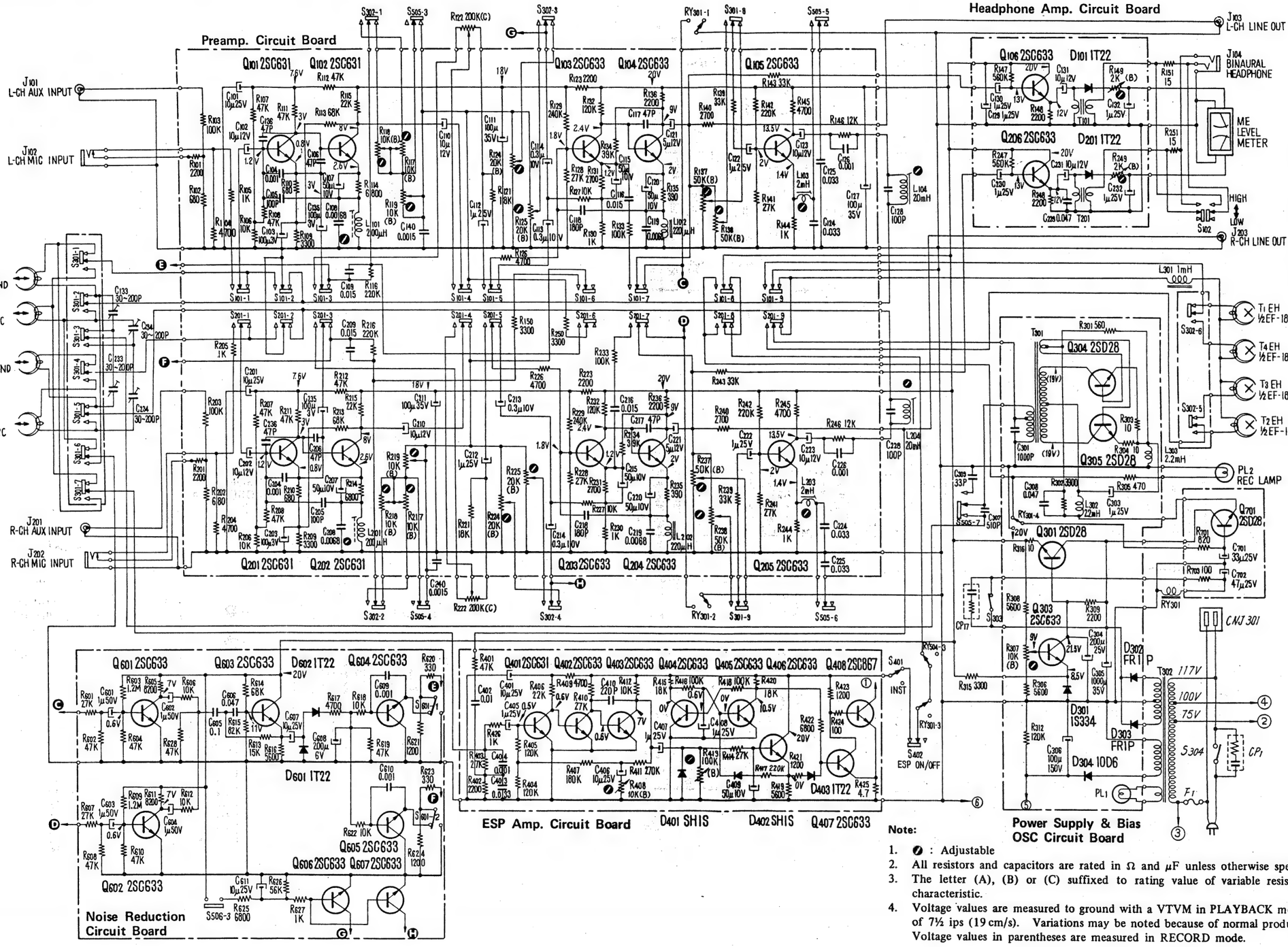
Note:

1. ◐ : Adjustable
2. All resistors and capacitors are rated in Ω and μF unless otherwise specified.
3. The letter (A), (B) or (C) suffixed to rating value of variable resistor indicates its characteristic.
4. Voltage values are measured to ground with a VTVM in PLAYBACK mode at the speed of 7½ ips (19 cm/s) Variations may be noted because of normal production tolerance.
   Voltage value on bias osc circuit measured in RECORD mode.

Resistor Indication

Adjustable Resistor L-Ch	Adjustable Resistor R-Ch	Description	Tape Direction	Tape Speed ips
R117	R227	Playback Equalizer Adj.	REVERSE	7½
R118	R218	Playback Equalizer Adj.	FORWARD	7½
R119	R219	Playback Equalizer Adj.	FWD & REV	3¾
R124	R224	Playback Level Adj.	FORWARD	—
R125	R225	Playback Level Adj.	REVERSE	—
R137	R237	Record Level Adj.	FORWARD	—
R138	R238	Record Level Adj.	REVERSE	—
R148		Meter Adj.	—	—
R307		Voltage Regulator Adj.	—	—

14-2. Preamplifier Circuit Serial No. 50,001 and later



Switch Indication

S101, 201	:	Rec./P.B. Switch (P.B.)
S102	:	Headphone Level Switch (LOW)
S301, 302	:	Tape Direction Switch (NORMAL)
S303	:	Play Switch (PLAY)
S304	:	Power Switch (ON)
S305, 306	:	Automatic Shut-off Switch (ON)
S401, 507	:	Instant Stop Switch (OFF)
S402	:	ESP ON/OFF Switch (ON)
S501	:	Stop Switch (OFF)
S502	:	Rewind Switch (OFF)
S503	:	Play Switch (OFF)
S504	:	FF Switch (OFF)
S505	:	Tape Speed Switch (19 cm/s)
S506	:	Direction Lever Switch (NORMAL)
S601	:	Noise Reduction Switch (ON)

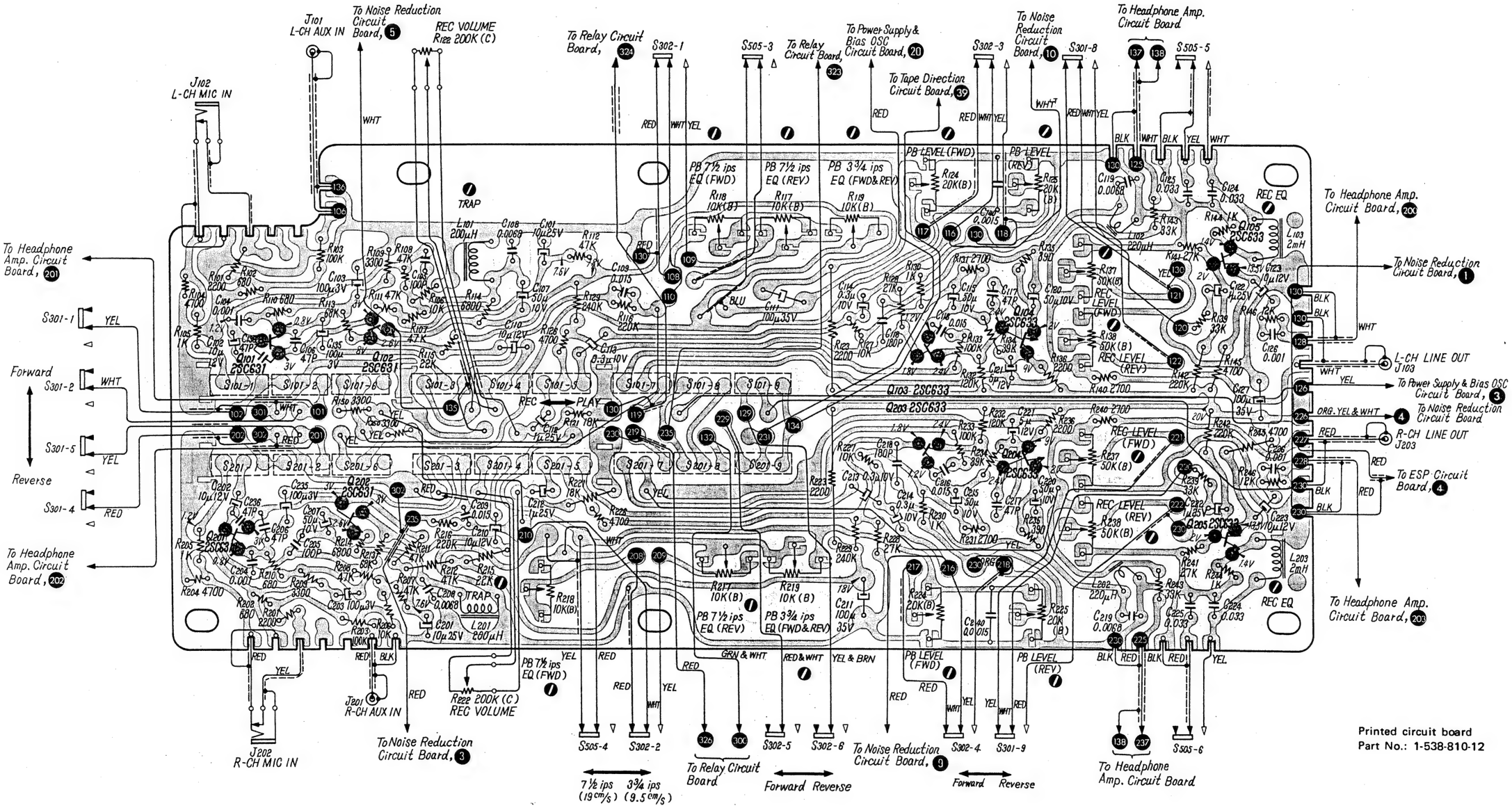
Note:

1. ◐ : Adjustable
2. All resistors and capacitors are rated in Ω and μF unless otherwise specified.
3. The letter (A), (B) or (C) suffixed to rating value of variable resistor indicates its characteristic.
4. Voltage values are measured to ground with a VTVM in PLAYBACK mode at the speed of 7½ ips (19 cm/s). Variations may be noted because of normal production tolerance. Voltage values in parentheses are measured in RECORD mode.

15. MOUNTING DIAGRAM

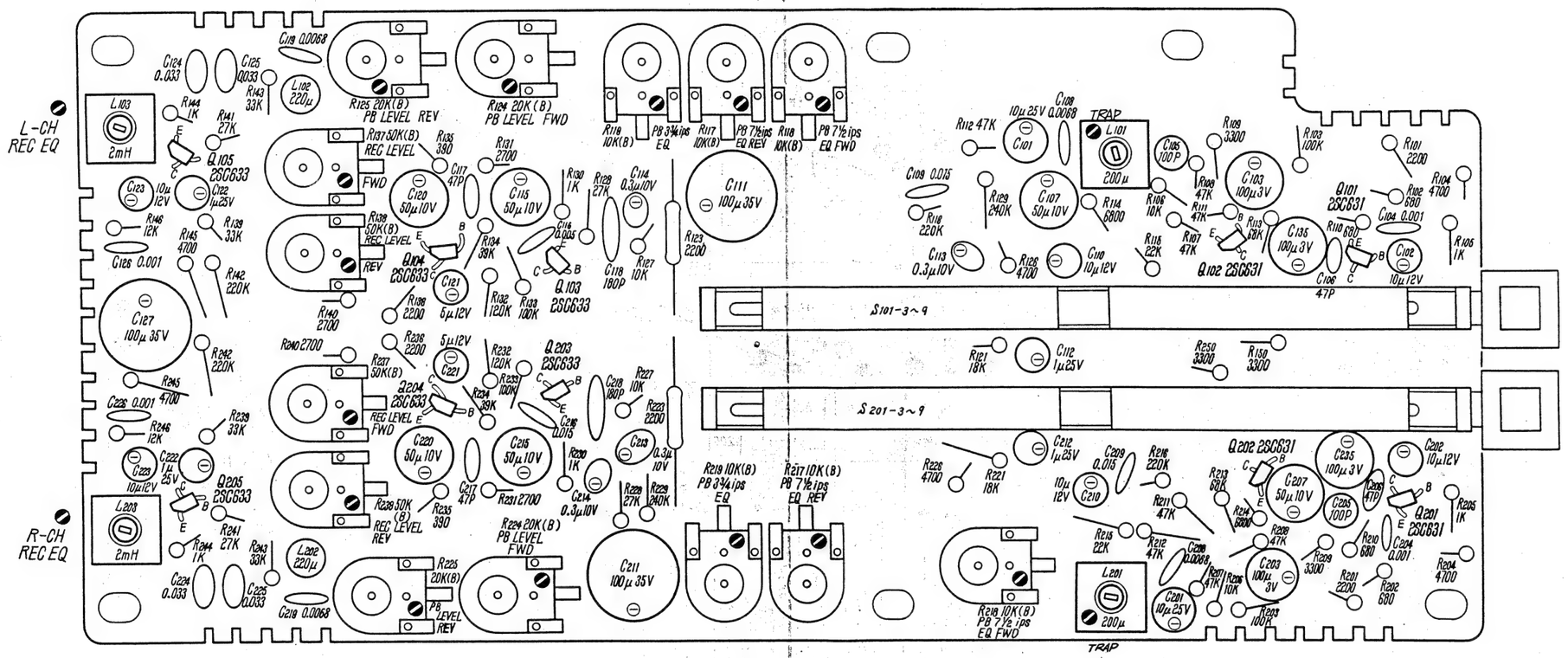
15-1. Preamplifier Circuit Board (P1)

— Conductor Side —

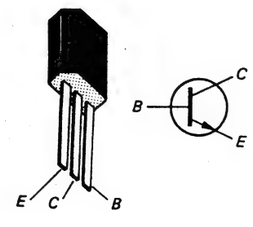


Printed circuit board
Part No.: 1-538-810-12

15-1. Preamplifier Circuit Board
– Component Side –

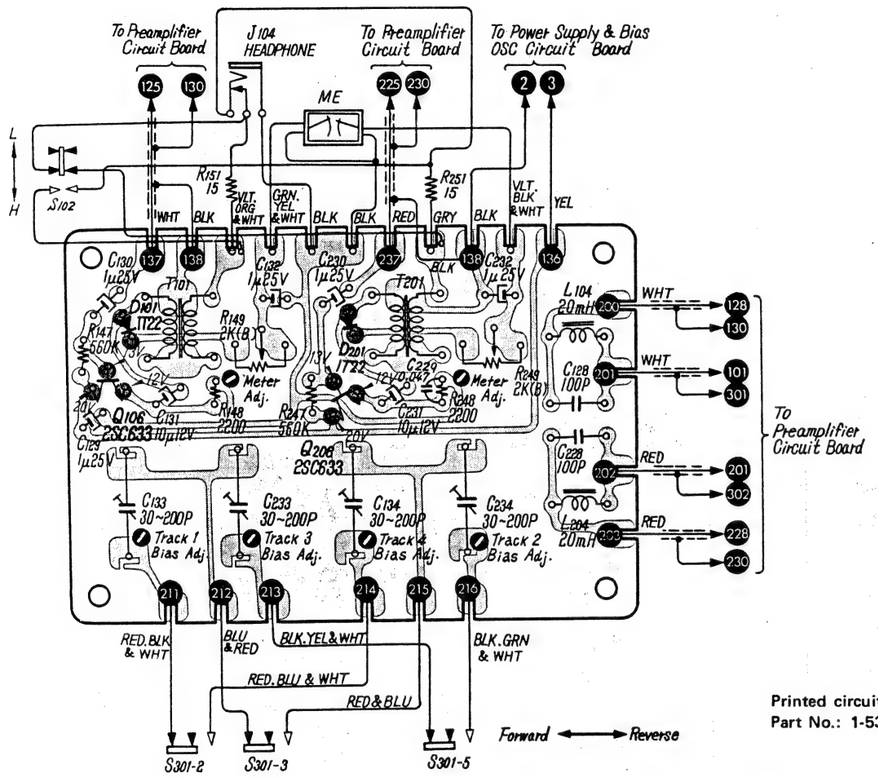


2SC631, 2SC633



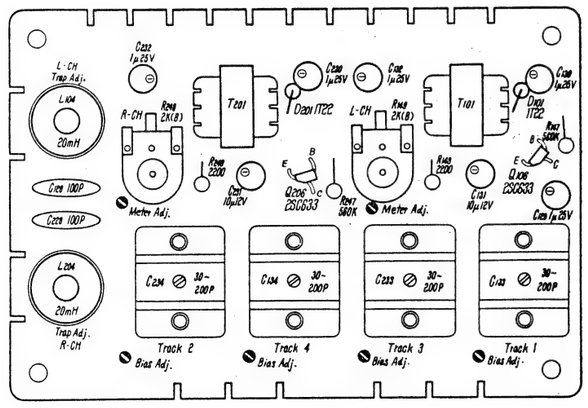
15-2. Headphone Amp. Circuit Board (P2)

– Conductor Side –

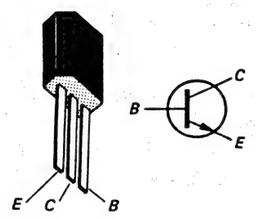


Printed circuit board
Part No.: 1-538-805-11

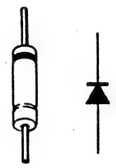
– Component Side –



2SC633

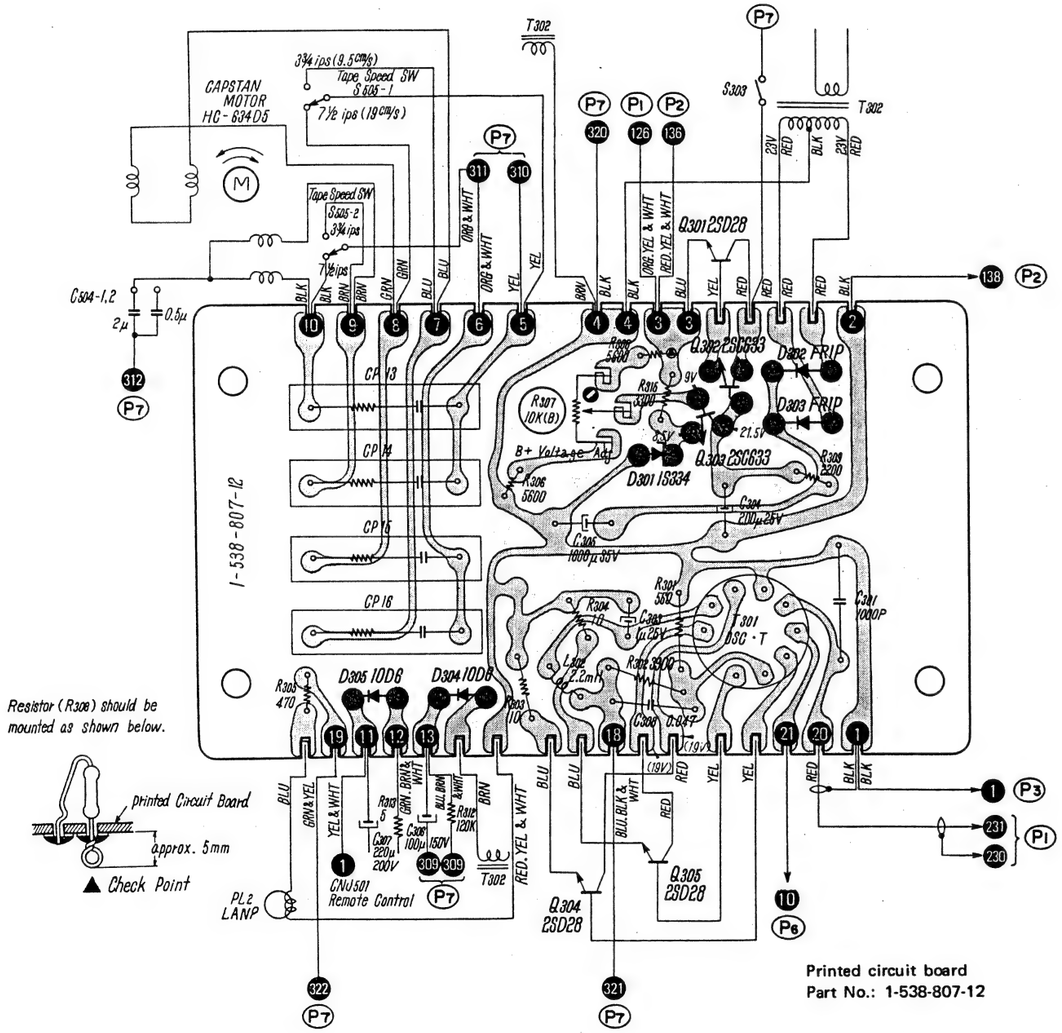


1T22



15-3. Power Supply & Bias OSC Circuit Board (P5)
– Conductor Side –

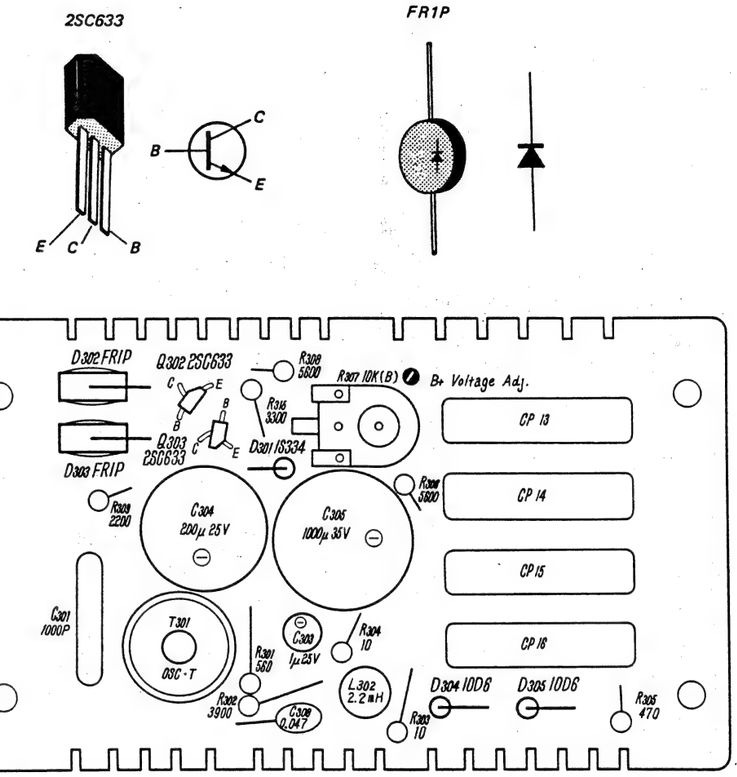
Up to Serial No. 50,000

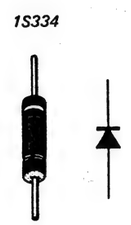


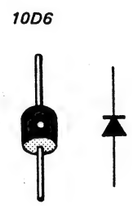
Printed circuit board
Part No.: 1-538-807-12

15-3. Power Supply & Bias OSC Circuit Board
– Component Side –

Up to Serial No. 50,000

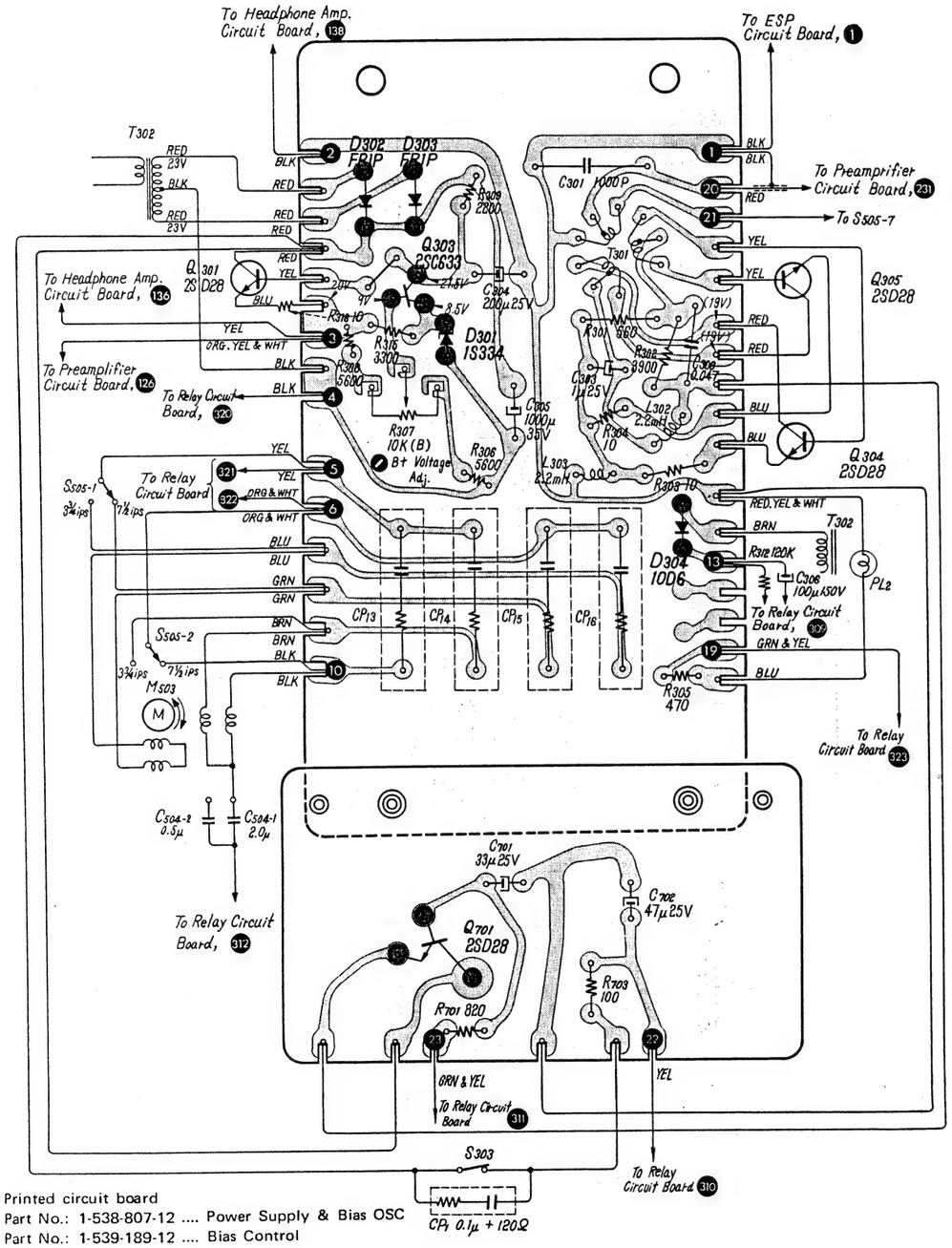






15-3. Power Supply & Bias OSC Circuit Board
– Conductor Side –

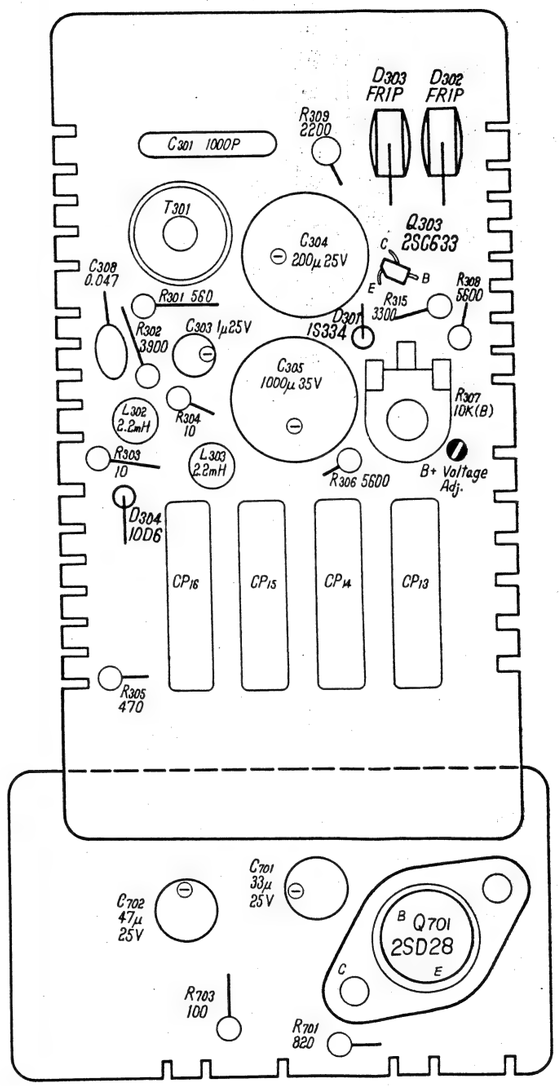
Serial No. 50,001 and later

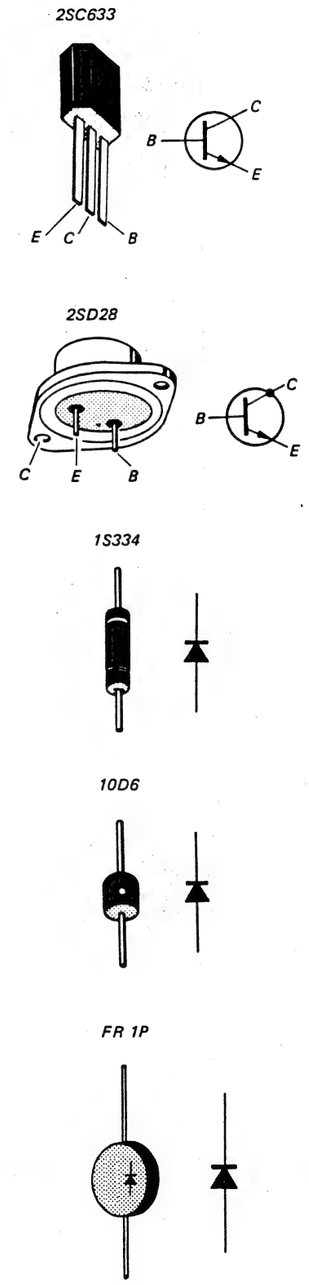


Printed circuit board
Part No.: 1-538-807-12 .... Power Supply & Bias OSC
Part No.: 1-539-189-12 .... Bias Control

15-3. Power Supply & Bias OSC Circuit Board
– Component Side –

Serial No. 50,001 and later

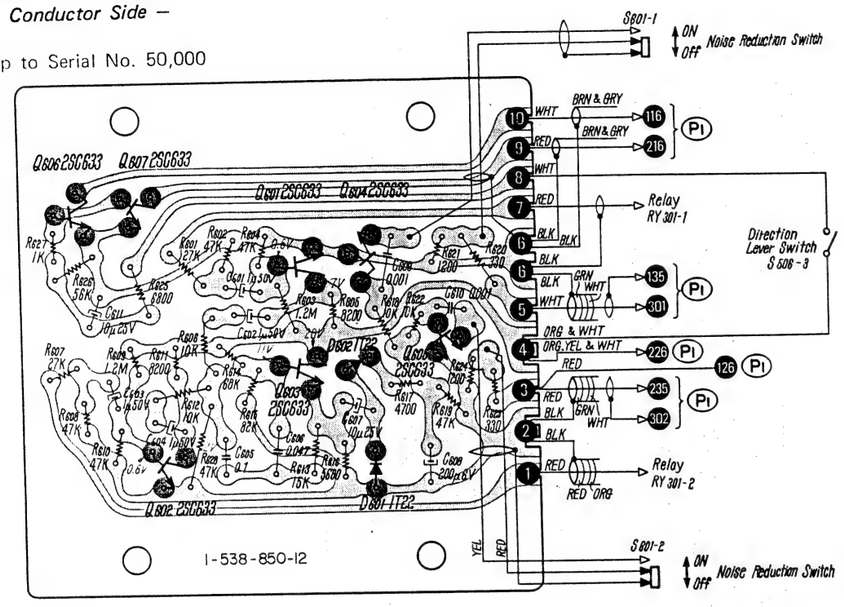




15-4. Noise Reduction Circuit Board (P4)

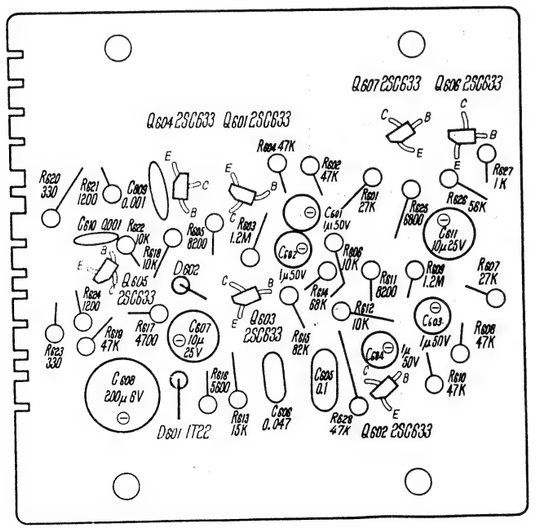
– Conductor Side –

Up to Serial No. 50,000

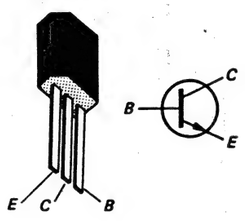


Printed circuit board
Part No.: 1-538-850-12

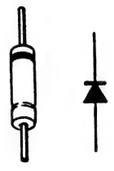
– Component Side –



2SC633



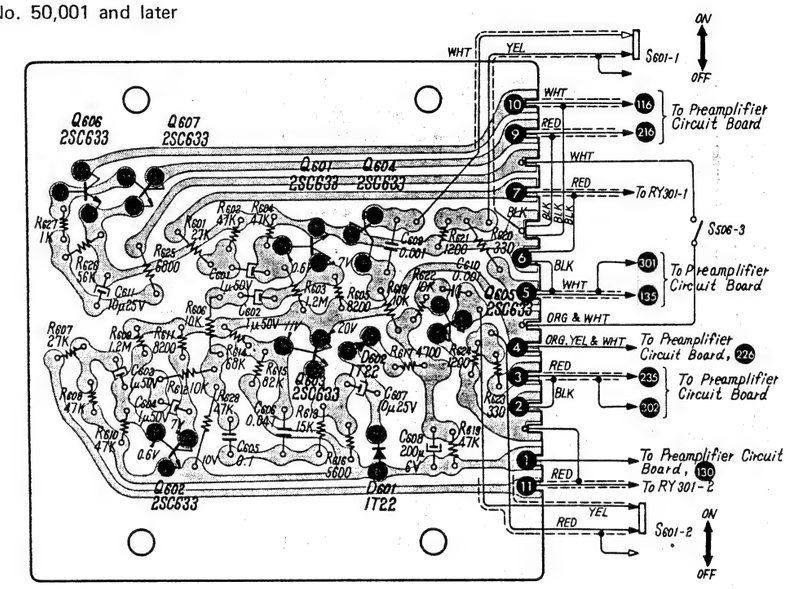
1T22



15-4. Noise Reduction Circuit Board

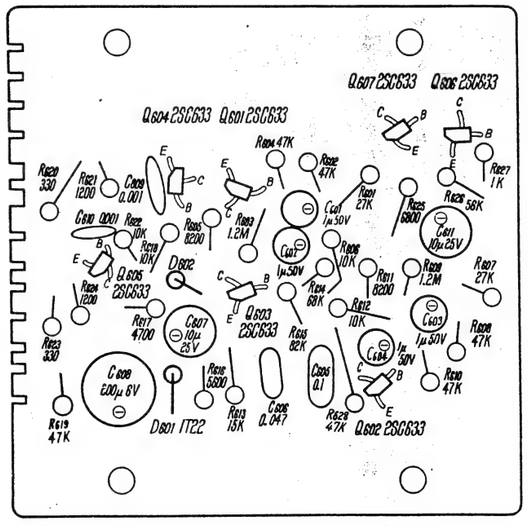
– Conductor Side –

Serial No. 50,001 and later



Printed circuit board
Part No.: 1-538-850-13

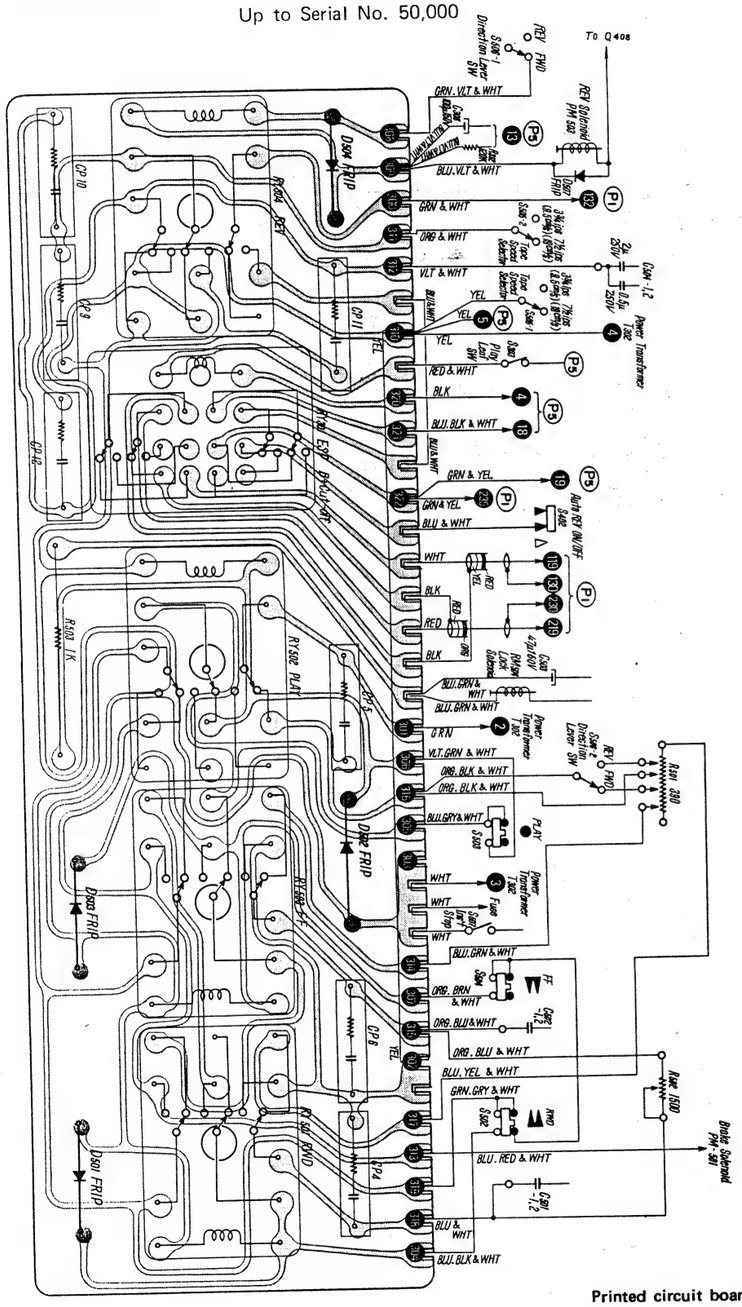
– Component Side –



15-5. Relay Circuit Board (P7)

– Conductor Side –

Up to Serial No. 50,000

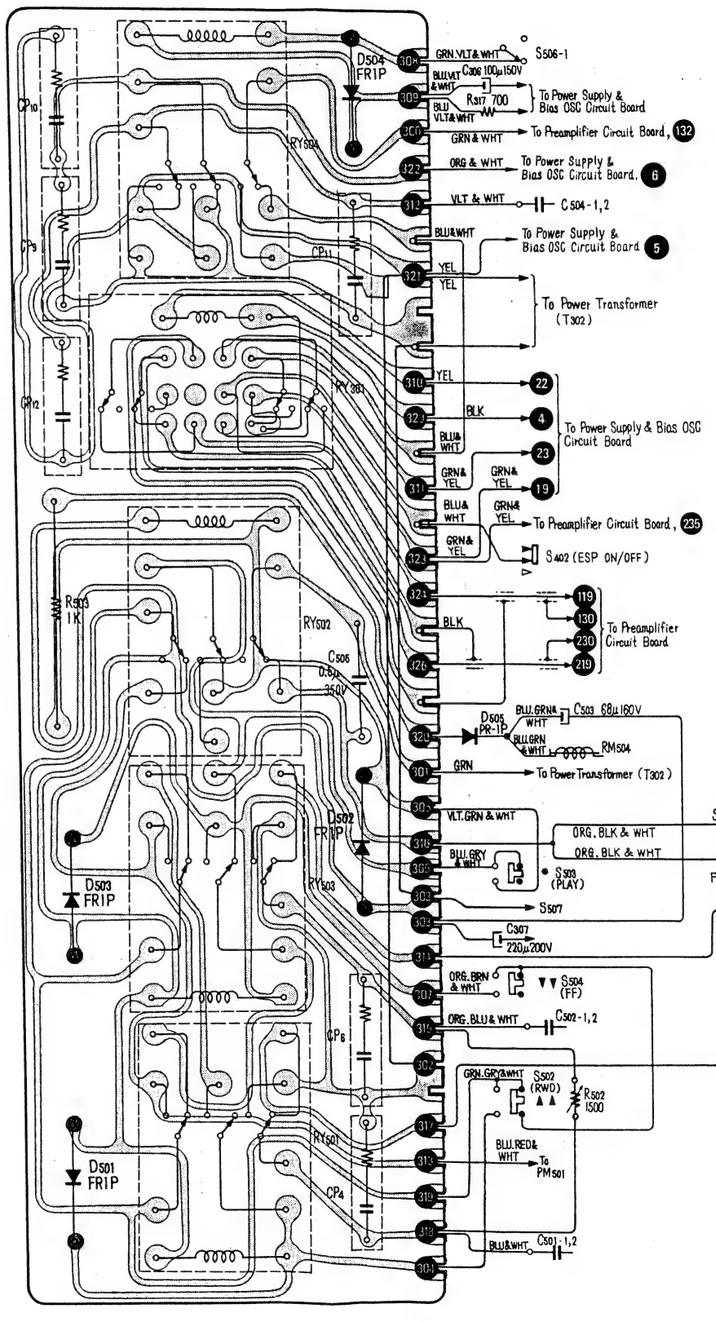


Printed circuit board
Part No.: 1-538-809-12

15-5. Relay Circuit Board

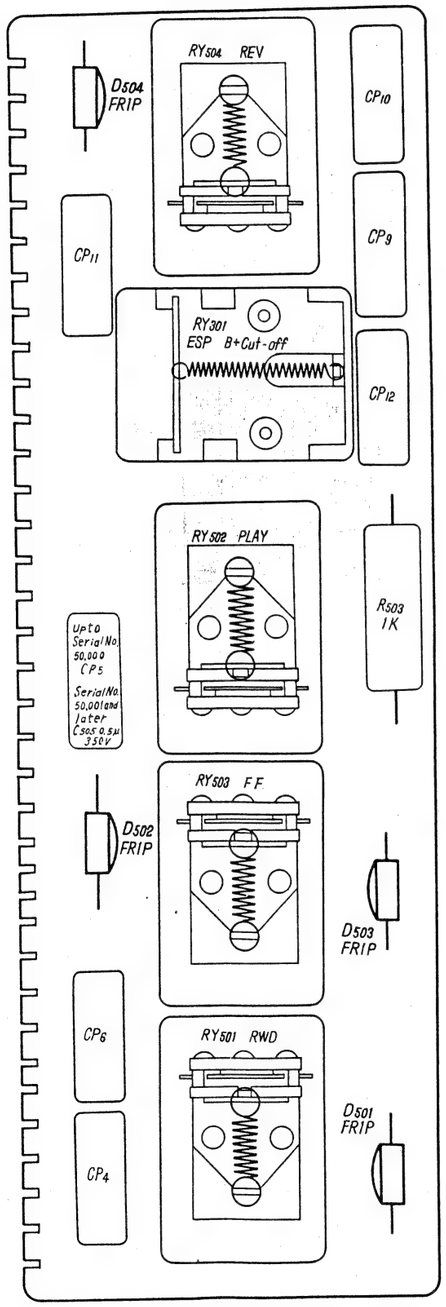
– Conductor Side –

Serial No. 50,001 and later

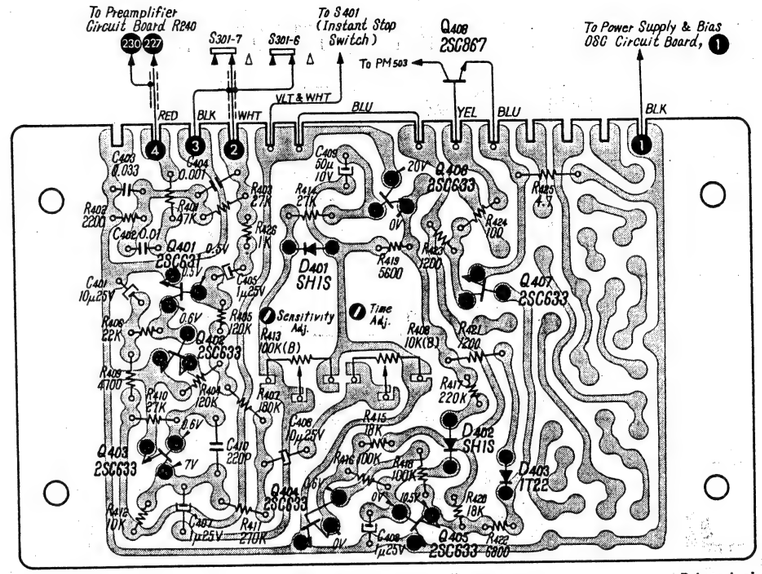


Printed circuit board
Part No.: 1-538-809-13

15-5. Relay Circuit Board
– Component Side –

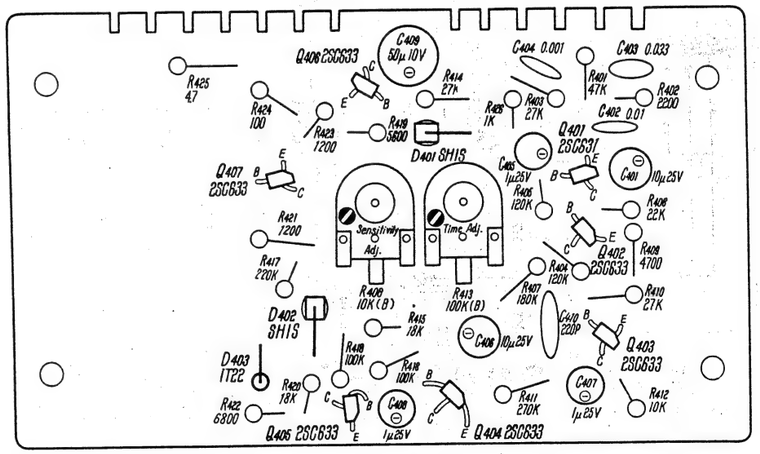


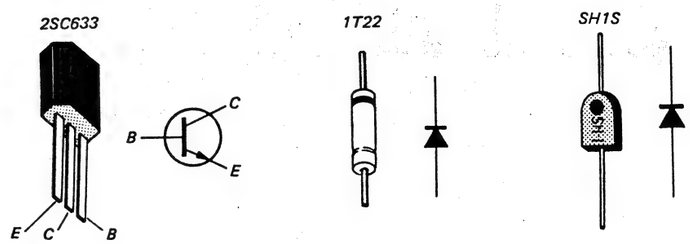
15-6. ESP Amp. Circuit Board (P3)
– Conductor Side –



Printed circuit board
Part No.: 1-538-806-11

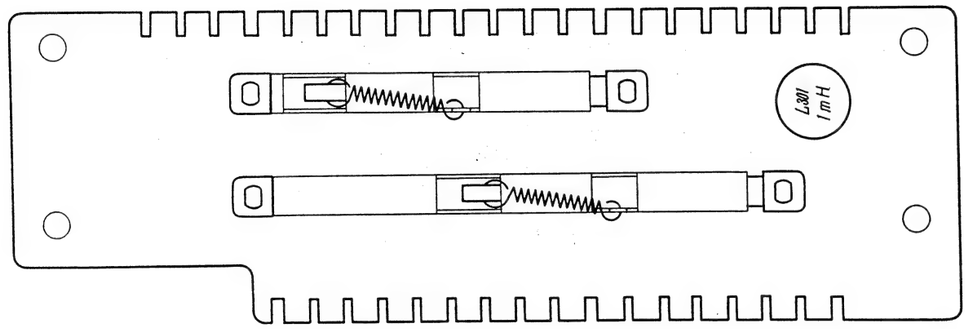
– Component Side –



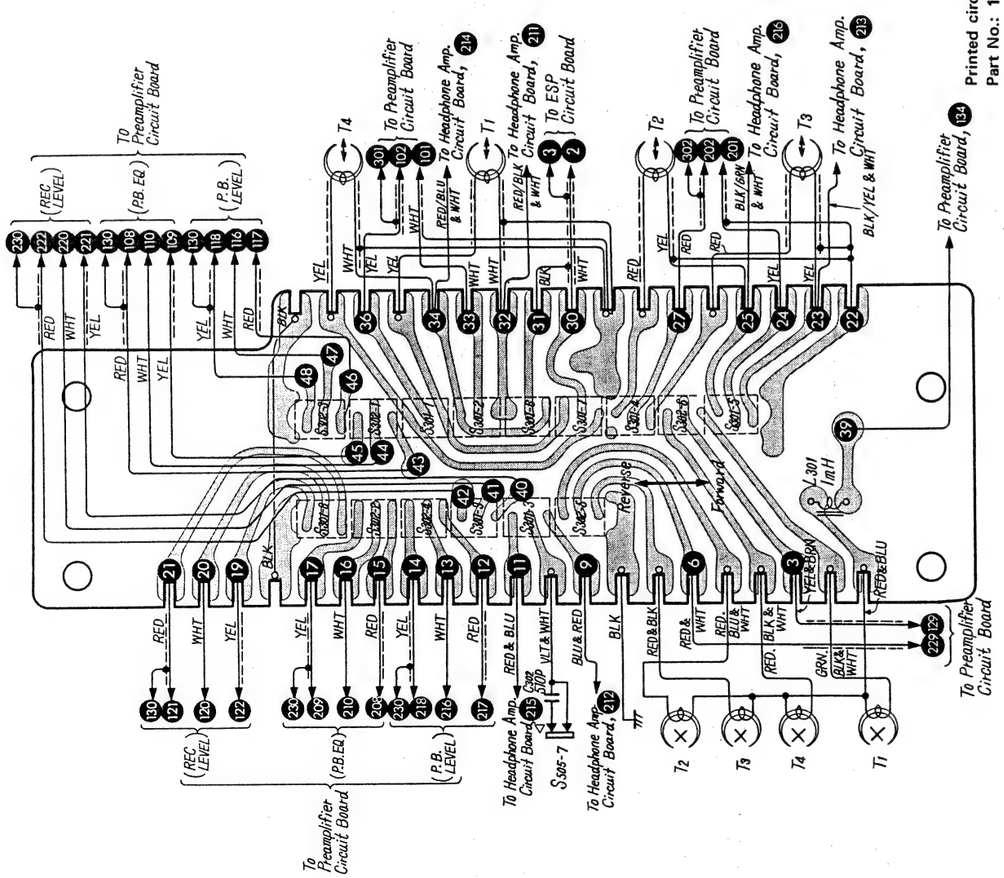


15-7. Tape Direction Circuit Board (P6)

– Component Side –



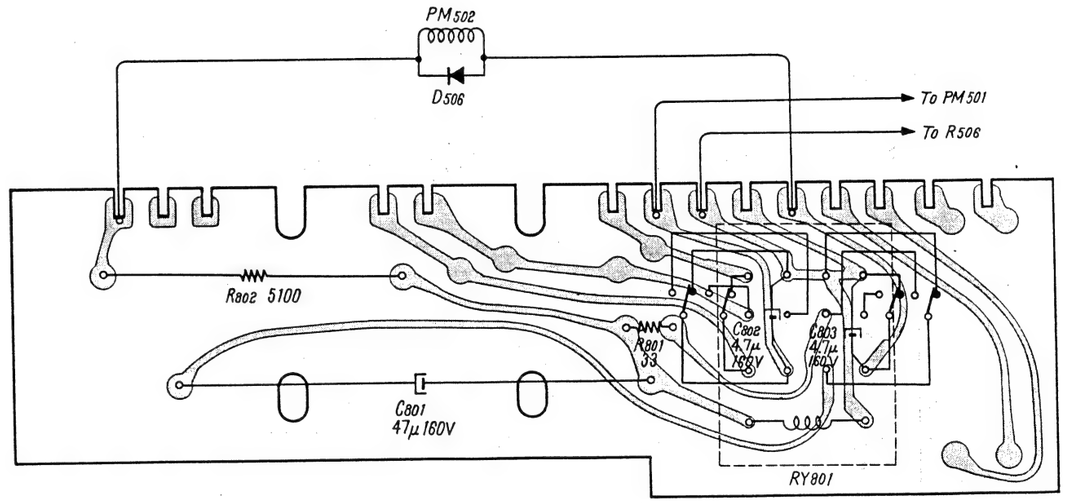
– Conductor Side –



Printed circuit board
Part No.: 1-538-808-11

15-8. System Control Circuit Board

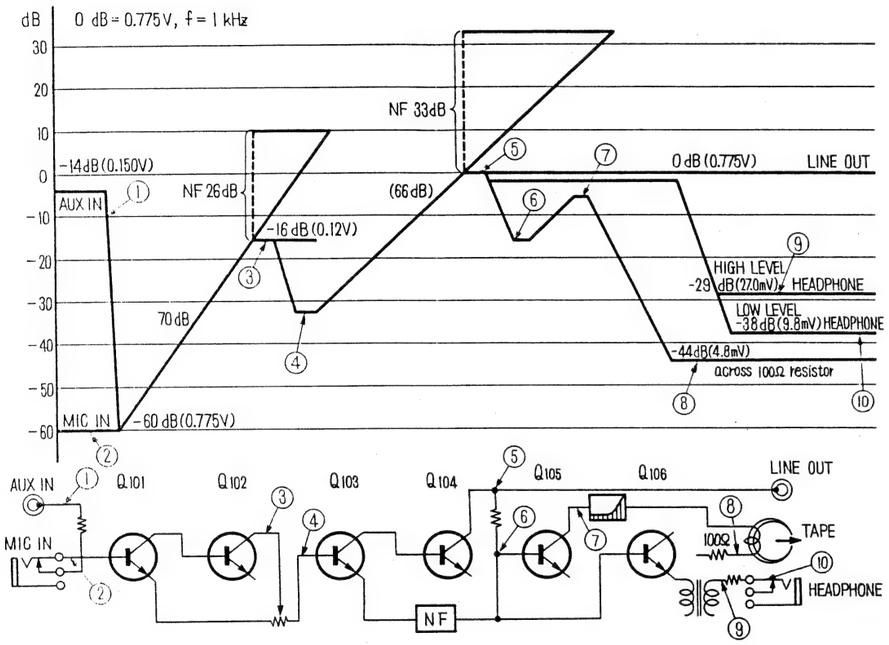
Serial No. 50,001 and later



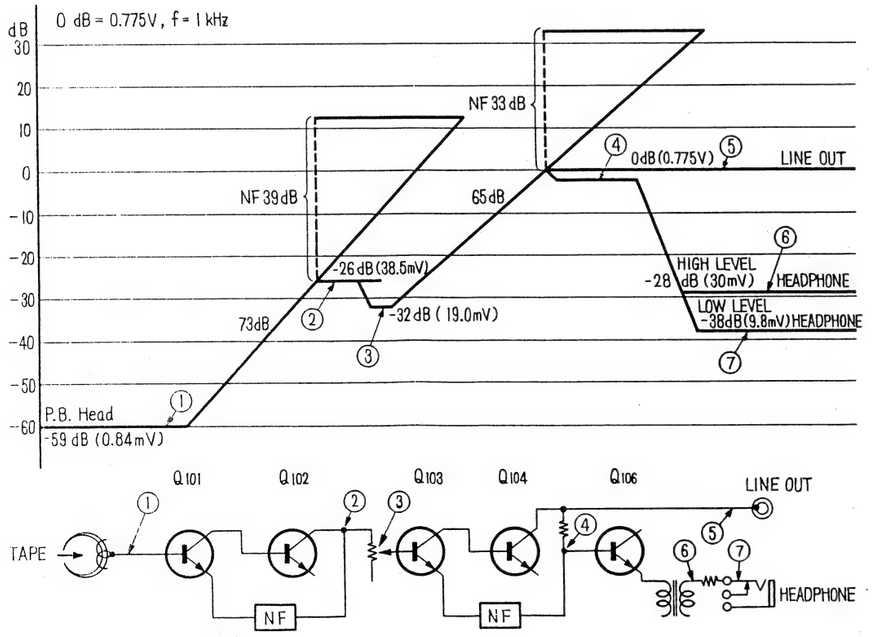
Printed circuit board
Part No.: 1-539-218-11

16. LEVEL DIAGRAM

16-1. Record



16-2. Playback



MEMO

17. ELECTRICAL PARTS LIST (for the set with Serial No. 50,001 and later)

Ref. No.	Part No.	Description
		MOUNTED CIRCUIT BOARDS
P1	X-31168-57-2	Preamplifier
P2	X-31168-51-2	Headphone Amplifier
P3	X-31168-52-2	ESP Amplifier
P4	X-31168-55-1	Noise Reduction
P5	X-31168-60-4	Power Supply & Bias OSC
P6	X-31168-54-1	Tape Direction Switch
P7	X-31168-65-3	Relay
P8	X-31168-66-1	System Control
		TRANSISTORS
Q101, 201		2SC631
Q102, 202		2SC631
Q103, 203		2SC633
Q104, 204		2SC633
Q105, 205		2SC633
Q106, 206		2SC633
Q301		2SD28
Q302		– discarded –
Q303		2SC633
Q304		2SD28
Q305		2SD28
Q401		2SC631
Q402		2SC633
Q403		2SC633
Q404		2SC633
Q405		2SC633
Q406		2SC633
Q407		2SC633
Q408		2SC867
Q601		2SC633
Q602		2SC633
Q603		2SC633
Q604		2SC633
Q605		2SC633
Q606		2SC633
Q607		2SC633
Q701		2SD28
		DIODES
D101, 201		1T22
D301		1S334
D302		FR-1P
D303		FR-1P
D304		10D6
D401		SH1S
D402		SH1S
D403		1T22
D501		FR-1P
D502		FR-1P
D503		FR-1P
D504		FR-1P
D505		FR-1P
D506		FR-1P
D507		FR-1P
D601		1T22
D602		1T22
		COILS
L101, 201	1-409-083-11	trap, 200μH
L102, 202	1-407-173-11	micro inductor, 220μH
L103, 203	1-409-130-11	trap, 2mH
L104, 204	1-409-094-12	trap, 20mH
L301	1-431-038-11	dummy, 1mH
L302	1-407-198-11	micro inductor, 2.2mH
L303	1-407-198-11	micro inductor, 2.2mH
		TRANSFORMERS
T101, 201	1-427-217-11	output
T301	1-433-125-11	bias oscillator
T302	1-441-412-11	power
		CAPACITORS
C101, 201	1-121-283-	10μF 25V, electrolytic
C102, 202	1-121-282-	10μF 12V, "
C103, 203	1-121-290-	100μF 3V, "
C104, 204	1-105-661-12	0.001μF, mylar
C105, 205	1-129-107-	100pF, polyethylene
C106, 206	1-107-015-	47pF, mica
C107, 207	1-121-352-	50μF 10V, electrolytic
C108, 208	1-105-671-12	0.0068μF, mylar
C109, 209	1-105-675-12	0.015μF, "
C110, 210	1-121-282-	10μF 12V, electrolytic
C111, 211	1-121-357-	100μF 35V, "
C112, 212	1-121-279-	1μF 25V, "
C113, 213	1-127-021-	0.3μF 10V, "
C114, 214	1-127-021-	0.3μF 10V, "
C115, 215	1-121-352-	50μF 10V, "
C116, 216	1-105-675-12	0.015μF, mylar
C117, 217	1-107-015-	47pF, mica
C118, 218	1-107-059-	180pF, "
C119, 219	1-105-671-12	0.0068μF, mylar
C120, 220	1-121-352-	50μF 10V, electrolytic
C121, 221	1-121-280-	5μF 12V, "
C122, 222	1-121-279-	1μF 25V, "

Ref. No.	Part No.	Description
C123, 223	1-121-282-	10μF 12V, electrolytic
C124, 224	1-105-679-12	0.033μF, mylar
C125, 225	1-105-679-12	0.033μF, "
C126, 226	1-105-661-12	0.001μF, "
C127	1-121-357-	100μF 35V, electrolytic
C128, 228	1-107-004-	100pF, mica
C129,	1-121-279-	1μF 25V, electrolytic
C130, 230	1-121-279-	1μF 25V, "
C131, 231	1-121-282-	10μF 12V, "
C132, 232	1-121-279-	1μF 25V, "
C133, 233	1-141-034-	30～200pF, trimmer
C134, 234	1-141-034-	30～200pF, "
C135, 235	1-121-290-	100μF 3V, electrolytic
C136, 236	1-107-015-	47pF, mica
C137, 237		– discarded –
C138, 238		"
C239	1-105-155-12	0.047μF, "
C140, 240	1-105-663-12	0.0015μF, "
C301	1-129-362-	1000pF, polyethylene
C302	1-107-201-	510pF, mica
C303	1-121-279-	1μF 25V, electrolytic
C304	1-121-379-	200μF 25V, "
C305	1-121-388-	1000μF 35V, "
C306	1-121-002-	100μF 150V, "
C307	1-121-701-	220μF 200V, "
C308	1-105-841-12	0.047μF, mylar
C309	1-109-188-	33pF, mica
C310	1-121-004-	200μF 150V, electrolytic
C401	1-121-283-	10μF 25V, "
C402	1-105-673-12	0.01μF, mylar
C403	1-105-679-12	0.033μF, "
C404	1-105-661-12	0.001μF, "
C405	1-121-279-	1μF 25V, electrolytic
C406	1-121-283-	10μF 25V, "
C407	1-121-279-	1μF 25V, "
C408	1-121-279-	1μF 25V, "
C409	1-121-352-	50μF 10V, "
C410	1-107-005-	220pF, mica
C501	1-117-049-	3+1μF 300V, MP
C502	1-117-049-	3+1μF 300V, "
C503	1-119-303-	68μF 160V, electrolytic
C504	1-117-040-	2+0.5μF 250V, MP
C505	1-117-054-	0.5μF 350V, MP
C601	1-121-442-	1μF 50V, electrolytic
C602	1-121-442-	1μF 50V, "
C603	1-121-442-	1μF 50V, "
C604	1-121-442-	1μF 50V, electrolytic
C605	1-105-685-12	0.1μF 50V, mylar
C606	1-105-681-12	0.047μF, "
C607	1-121-472-	10μF 25V, electrolytic
C608	1-121-295-	200μF 6V, "
C609	1-105-661-12	0.001μF, mylar
C610	1-105-661-12	0.001μF, "
C611	1-121-472-	10μF 25V, electrolytic
C701	1-121-373-	33μF 25V, "
C702	1-121-375-	47μF 25V, "
C801	1-119-301-	47μF 160V, "
C802	1-119-302-	4.7μF 160V, "
C803	1-119-302-	4.7μF 160V, "
		RESISTORS
R101, 201	1-242-681-09	2200Ω ¼W, carbon
R102, 202	1-242-669-	680Ω " , "
R103, 203	1-242-721-09	100kΩ " , "
R104, 204	1-242-689-09	4700Ω " , "
R105, 205	1-242-673-	1kΩ " , "
R106, 206	1-242-697-	10kΩ " , "
R107, 207	1-242-713-09	47kΩ " , "
R108, 208	1-242-713-09	47kΩ " , "
R109, 209	1-242-685-09	3300Ω " , "
R110, 210	1-242-669-	680Ω " , "
R111, 211	1-242-713-09	47kΩ " , "
R112, 212	1-242-713-	47kΩ " , "
R113, 213	1-242-717-	68kΩ " , "
R114, 214	1-242-693-09	6800Ω " , "
R115, 215	1-242-705-09	22kΩ " , "
R116, 216	1-242-729-09	220kΩ " , "
R117, 217	1-221-401-	10kΩ semi-fixed
R118, 218	1-221-401-	10kΩ "
R119, 219	1-221-401-	10kΩ "
R120, 220		– discarded –
R121, 221	1-242-703-	18kΩ ¼W, carbon
R122, 222	1-221-923-	200kΩ variable
R123, 223	1-244-681-	2200Ω ¼W, carbon
R124, 224	1-221-952-	20kΩ semi-fixed
R125, 225	1-221-952-	20kΩ "
R126, 226	1-242-689-	4700Ω ¼W, carbon
R127, 227	1-242-697-	10kΩ " , "
R128, 228	1-242-707-	27kΩ " , "
R129, 229	1-242-730-	240kΩ " , "
R130, 230	1-242-673-	1kΩ " , "
R131, 231	1-242-683-	2700Ω " , "
R132, 232	1-242-723-	120kΩ " , "

Ref. No.	Part No.	Description
R133, 233	1-242-721-	100kΩ ¼W, carbon
R134, 234	1-242-711-	39kΩ " , "
R135, 235	1-242-663-	390Ω " , "
R136, 236	1-242-681-	2200Ω " , "
R137, 237	1-221-953-	50kΩ semi-fixed
R138, 238	1-221-953-	50kΩ "
R139, 239	1-242-709-	33kΩ ¼W, carbon
R140, 240	1-242-683-	2700Ω " , "
R141, 241	1-242-707-	27kΩ " , "
R142, 242	1-242-729-	220kΩ " , "
R143, 243	1-242-709-	33kΩ " , "
R144, 244	1-242-673-	1kΩ " , "
R145, 245	1-242-689-	4700Ω " , "
R146, 246	1-242-699-	12kΩ " , "
R147, 247	1-242-739-	560kΩ " , "
R148, 248	1-242-681-	2200Ω " "
R149, 249	1-221-962-	2kΩ semi-fixed
R150, 250	1-242-685-	3300Ω ¼W, carbon
R151, 251	1-244-629-	15Ω " , "
R301	1-242-667-	560Ω " , "
R302	1-242-687-	3900Ω " , "
R303	1-242-625-	10Ω " , "
R304	1-242-625-	10Ω " , "
R305	1-242-665-	470Ω ½W, "
R306	1-242-691-	5600Ω ¼W, "
R307	1-221-401-	10kΩ semi-fixed
R308	1-242-691-	5600Ω ¼W, carbon
R309	1-242-681-	2200Ω " , "
R310		– discarded –
R311		"
R312	1-204-315-	120kΩ ½W, carbon
R313	1-205-444-	5Ω wire wound
R314	1-204-315-	120kΩ ½W, carbon
R315	1-242-685-	3300Ω ¼W, "
R316	1-210-572-	10Ω 2W, "
R317	1-205-443-	700Ω wire wound
R401	1-242-713-	47kΩ ¼W, carbon
R402	1-242-681-	2200Ω " , "
R403	1-242-707-	27kΩ " , "
R404	1-242-723-	120kΩ " , "
R405	1-242-723-	120kΩ " , "
R406	1-242-705-	22kΩ " , "
R407	1-242-727-	180kΩ " , "
R408	1-221-962-	10kΩ semi-fixed
R409	1-242-689-	4700Ω ¼W, carbon
R410	1-242-707-	27kΩ " , "
R411	1-242-731-	270kΩ " , "
R412	1-242-697-	10kΩ " , "
R413	1-221-315-	100kΩ semi-fixed
R414	1-242-707-	27kΩ ¼W, carbon
R415	1-242-703-	18kΩ " , "
R416	1-242-721-	100kΩ " , "
R417	1-242-729-	220kΩ " , "
R418	1-242-721-	100kΩ " , "
R419	1-242-691-	5600Ω " , "
R420	1-242-703-	18kΩ " , "
R421	1-242-686-	1200Ω " , "
R422	1-242-693-	6800Ω " , "
R423	1-242-675-	1200Ω " , "
R424	1-242-649-	100Ω " , "
R425	1-242-617-	4.7Ω " , "
R426	1-242-673-	1kΩ " , "
R501	1-227-105-	390Ω wire wound
R502	1-227-095-	1500Ω "
R503	1-207-164-	1kΩ metal oxide filmed
R506	1-205-445-	1500Ω "
R507	1-205-445-	1500Ω "
R601	1-242-707-	27kΩ ¼W, carbon
R602	1-242-713-	47kΩ " , "
R603	1-242-747-	1.2MΩ " , "
R604	1-242-713-	47kΩ " , "
R605	1-242-695-	8200Ω " , "
R606	1-242-697-	10kΩ " , "
R607	1-242-707-	27kΩ " , "
R608	1-242-713-	47kΩ " , "
R609	1-242-747-	1.2MΩ " , "
R610	1-242-713-	47kΩ " , "
R611	1-242-695-	8200Ω " , "
R612	1-242-697-	10kΩ " , "
R613	1-242-701-	15kΩ " , "
R614	1-242-717-	68kΩ " , "
R615	1-242-719-	82kΩ " , "
R616	1-242-691-	5600Ω " , "
R617	1-242-689-	4700Ω " , "
R618	1-242-697-	10kΩ " , "
R619	1-242-713-	47kΩ " , "
R620	1-242-661-	330Ω " , "
R621	1-242-675-	1200Ω " , "
R622	1-242-697-	10kΩ " , "
R623	1-242-661-	330Ω " , "

Ref. No.	Part No.	Description
R624	1-242-675-	1200Ω ¼W, carbon
R625	1-242-693-	6800Ω " , "
R626	1-242-715-	56kΩ " , "
R627	1-242-673-	1kΩ " , "
R628	1-242-713-	47kΩ " , "
R701	1-242-671-	820Ω " , "
R702		– discarded –
R703	1-242-649-	100Ω ¼W, carbon
R801	1-242-637-	33Ω " , "
R802	1-244-890-	5100Ω ½W, "

ENCAPSULATED COMPONENTS

CP1	1-101-528-	120Ω + 0.1μF
CP2		– discarded –
CP3	1-101-534-	120Ω + 0.1μF
CP4	1-101-534-	120Ω + 0.1μF
CP5		– discarded –
CP6	1-101-534-	120Ω + 0.1μF
CP7	1-101-534-	120Ω + 0.1μF
CP8	1-101-534-	120Ω + 0.1μF
CP9	1-101-534-	120Ω + 0.1μF
CP10	1-101-534-	120Ω + 0.1μF
CP11	1-101-534-	120Ω + 0.1μF
CP12	1-101-534-	120Ω + 0.1μF
CP13	1-101-534-	120Ω + 0.1μF
CP14	1-101-534-	120Ω + 0.1μF
CP15	1-101-534-	120Ω + 0.1μF
CP16	1-101-534-	120Ω + 0.1μF
CP17	1-101-534-	120Ω + 0.1μF

SWITCHES

S101, 201	1-513-236-13	rec./p.b.
S102	1-514-415-21	headphone level
S301	1-514-454-11	tape direction
S302	1-514-453-11	"
S303	1-514-041-02	play/stop
S304	1-514-306-41	power
S305	1-514-231-21	automatic shut-off
S306	1-514-231-21	"
S401	1-514-057-10	instant stop
S402	1-514-415-21	ESP ON/OFF
S501	1-514-057-10	stop
S502	1-514-057-10	rewind
S503	1-514-057-10	play
S504	1-514-057-10	fast forward
S505	1-514-451-11	tape speed
S506	1-514-452-13	direction lever
S507	1-514-057-10	instant stop
S601	1-514-415-21	SNR

JACKS

J101, 201	1-507-142-13	auxiliary input
J102, 202	1-507-188-11	microphone
J103, 203	1-507-142-13	line output
J104	1-507-187-11	headphone

CONNECTOR

CNJ301	1-509-015-01	ac power

RELAYS

RY301	1-515-112
RY501	1-515-111
RY502	1-515-111
RY503	1-515-111
RY504	1-515-111
RY801	1-515-122

PLUNGER SOLENOID

PM501	1-454-021-11	brake
PM502	1-454-034-11	pinch roller
PM503	1-454-021-11	reverse
PM504	1-454-024-11	lock

MOTORS

M501	8-836-624-03S	spooling
M502	8-836-624-03S	"
M503	8-831-634-15S	capstan

FUSES

F1	1-532-100-11	2A
F2	1-532-099-11	1.6A

HEADS

RPHT1, 3	8-822-542-22	forward-rec./p.b. (PP77-4202NE
RPHT2, 4	8-822-542-21	reverse-rec./p.b. (PP77-4202C)
EHT1-4	8-826-629-23	erase (EF18-2902H)

LAMPS

PL1	1-518-082-11	pilot; 4.5V, 40mA
PL2	1-518-105-11	record; 2V, 100mA

METER

ME	1-524-051-12	VU

18. HARDWARES

Part No.	Description
Screws	
7-621-255-25	⊕ P 2 x 4
7-621-255-35	⊕ P 2 x 5
7-621-255-55	⊕ P 2 x 8
7-621-259-25	⊕ P 2.6 x 4
7-621-259-28	⊕ P 2.6 x 4
7-621-770-62	⊕ B 2.6 x 5
7-621-259-35	⊕ P 2.6 x 5
7-621-259-55	⊕ P 2.6 x 8
7-621-259-59	⊕ P 2.6 x 8
7-621-259-75	⊕ P 2.6 x 12
7-621-261-15	⊕ P 3 x 3
7-621-261-25	⊕ P 3 x 4
7-628-251-25	⊕ P 3 x 6
7-628-251-35	⊕ P 3 x 8
7-621-261-65	⊕ P 3 x 10
7-621-261-68	⊕ P 3 x 10
7-621-261-75	⊕ P 3 x 12
7-621-261-95	⊕ P 3 x 15
7-628-257-25	⊕ P 4 x 6
7-628-257-15	⊕ P 4 x 8
7-628-257-35	⊕ P 4 x 10
7-621-268-75	⊕ P 4 x 12
7-621-274-45	⊕ P 5 x 12
7-621-555-13	⊕ K 2 x 3
7-621-712-31	⊖ SC 2.6 x 4
7-621-713-12	⊖ SC 3 x 3
7-621-715-12	⊖ SC 4 x 4
7-621-555-15	⊕ K 2 x 3
7-621-561-45	⊕ K 3 x 6
7-621-561-55	⊕ K 3 x 8
7-621-561-65	⊕ K 3 x 10
7-621-661-68	⊕ RK 3 x 10
7-621-667-79	⊕ RK 3 x 12
2-034-691-15	⊖ SC 5 x 10
2-034-691-02	⊖ SC 3 x 5
2-034-693-02	⊖ SC 3 x 4
2-034-693-05	⊖ SC 4 x 6
Nuts	
7-662-105-02	2φ
7-662-107-02	2.6φ
7-622-108-02	3φ
7-622-110-02	4φ
7-622-113-02	6φ
Washers	
7-623-105-12	2φ
7-623-107-12	2.6φ
7-623-108-12	3φ
7-623-110-12	4φ
7-623-105-02	2φ
7-623-108-02	3φ
7-623-110-62	4φ
7-623-112-01	5φ
Spring Washers	
7-623-205-27	2φ
7-623-207-27	2.6φ
7-623-208-27	3φ
7-623-210-28	4φ
Retaining Rings	
7-624-106-01	E-3φ
7-624-108-01	E-4φ
7-624-109-01	E-5φ
Lugs	
7-623-508-01	3φ
7-623-510-01	4φ
7-623-513-01	6φ

– Hardware Nomenclature –

P – Pan Head Screw .....

PS – Pan Head Screw with Spring Washer .....

K – Flat Countersunk Head Screw ...

B – Binding Head Screw .....

RK – Oval Countersunk Head Screw ..

T – Truss Head Screw .....

R – Round Head Screw .....

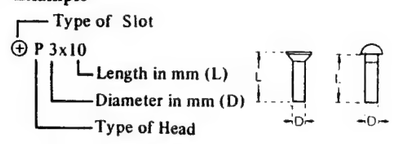
F – Flat Fillister Head Screw .....

SC – Set Screw .....

E – Retaining Ring (E Washer) .....

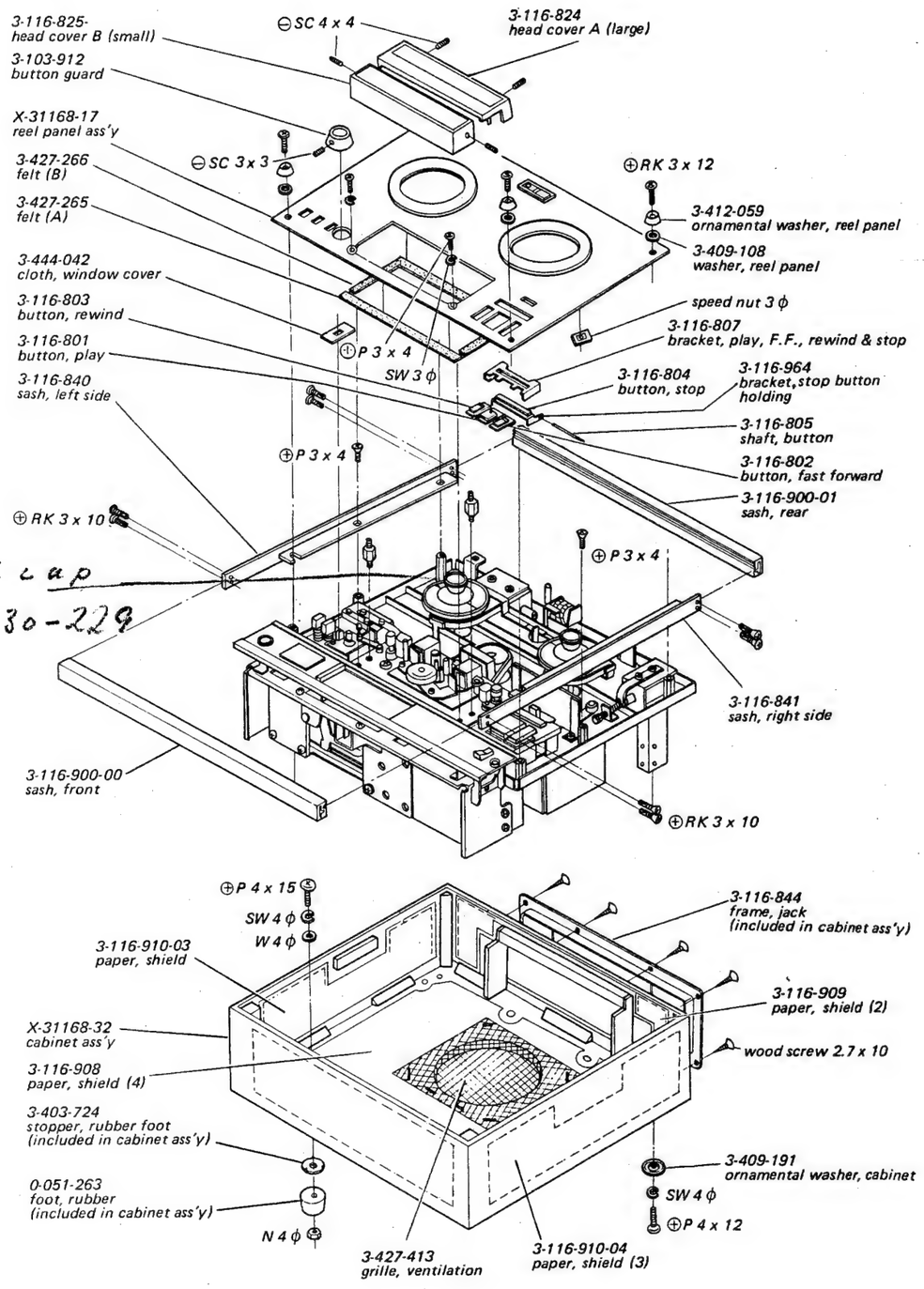
W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

– Example –

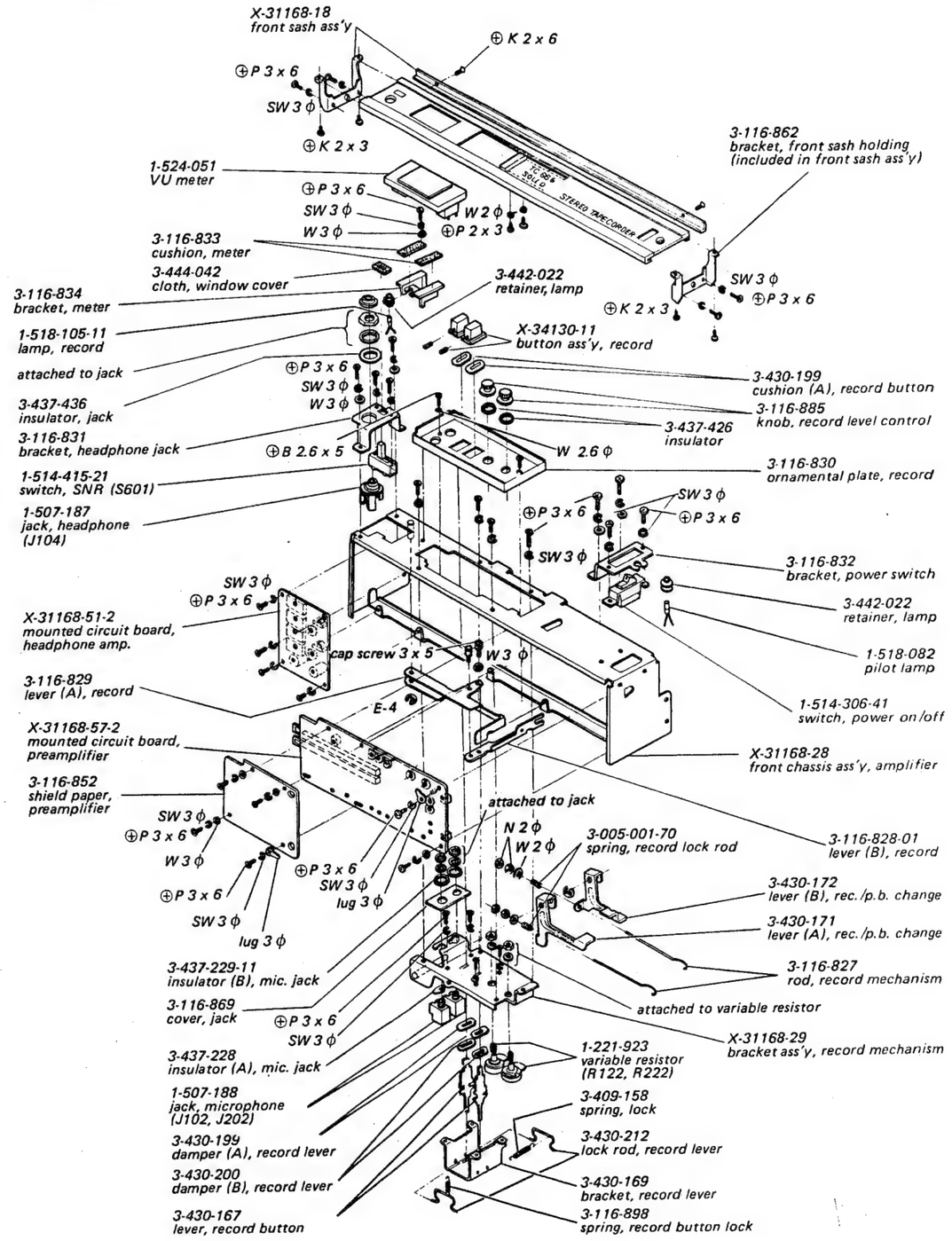


19. EXPLODED VIEW

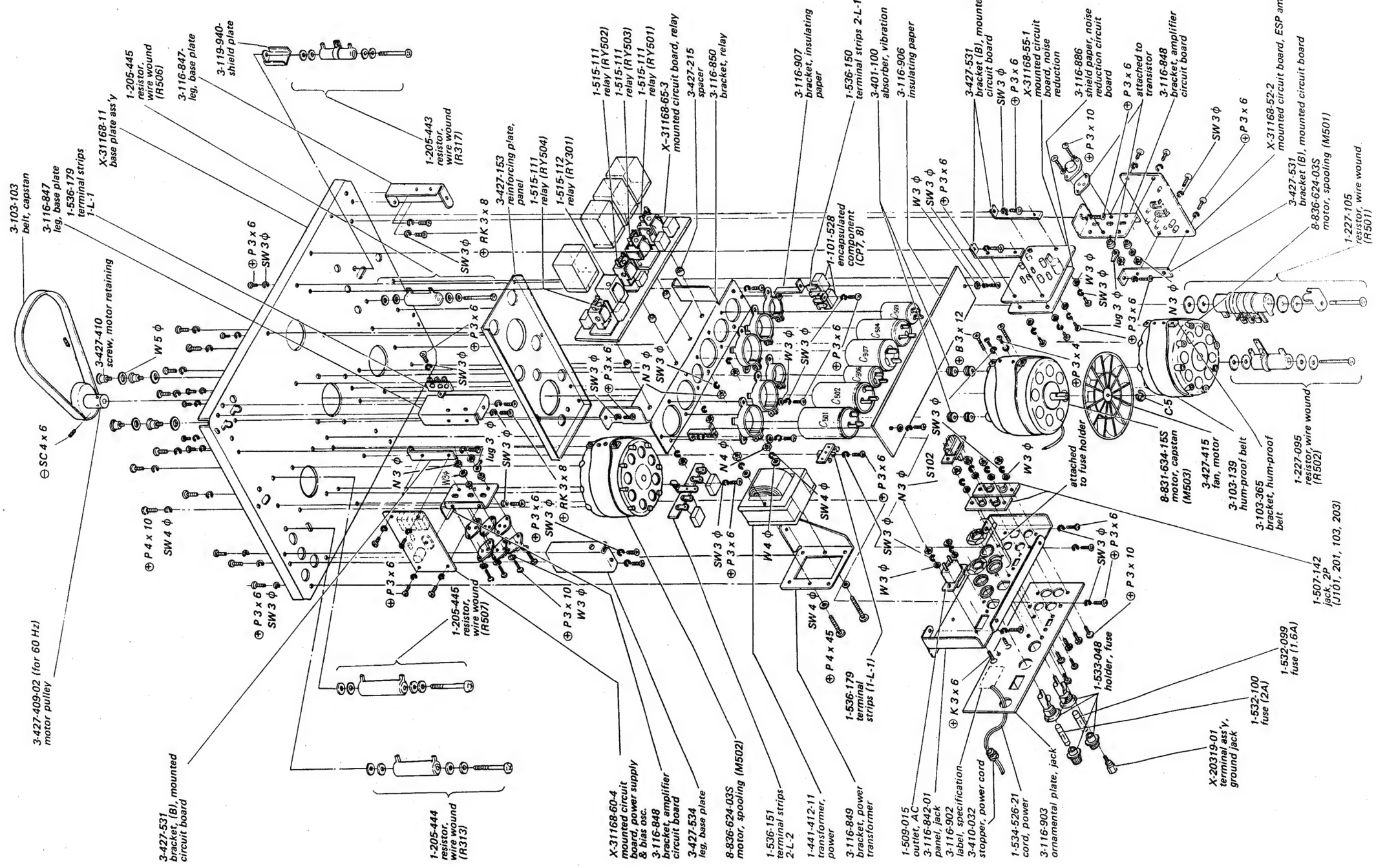
19-1. Cabinet — top view —

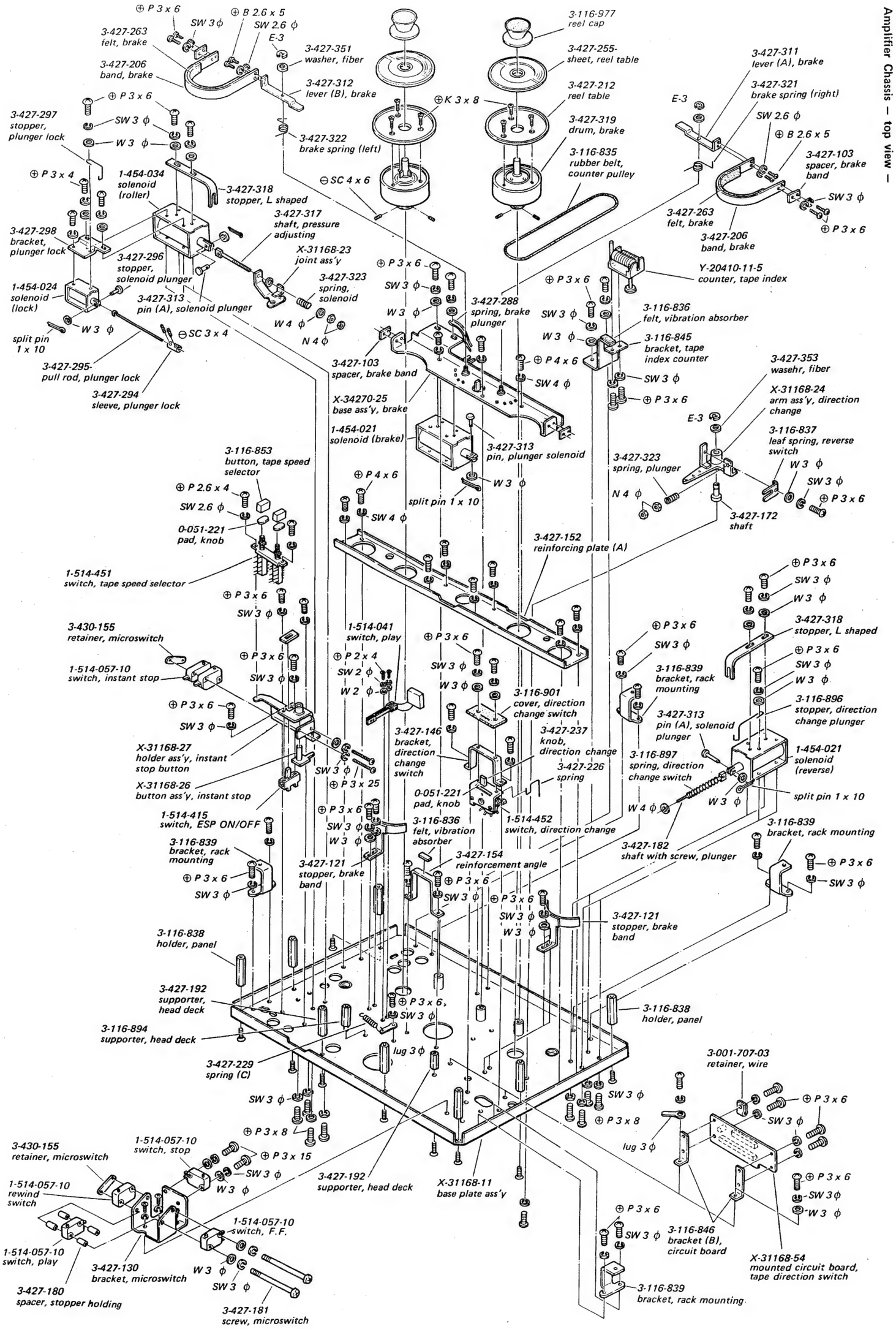


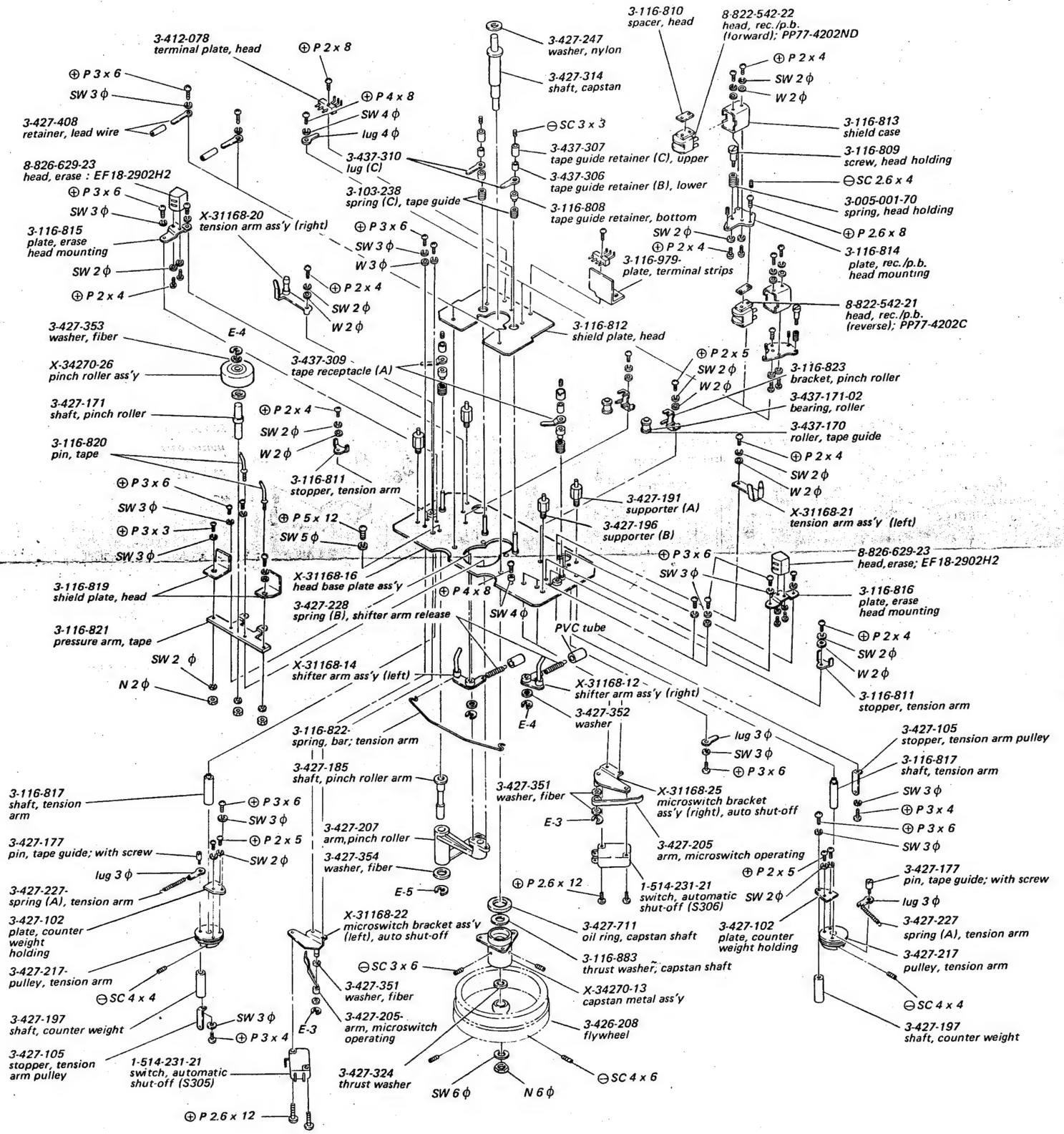
19-2. Chassis — top view —



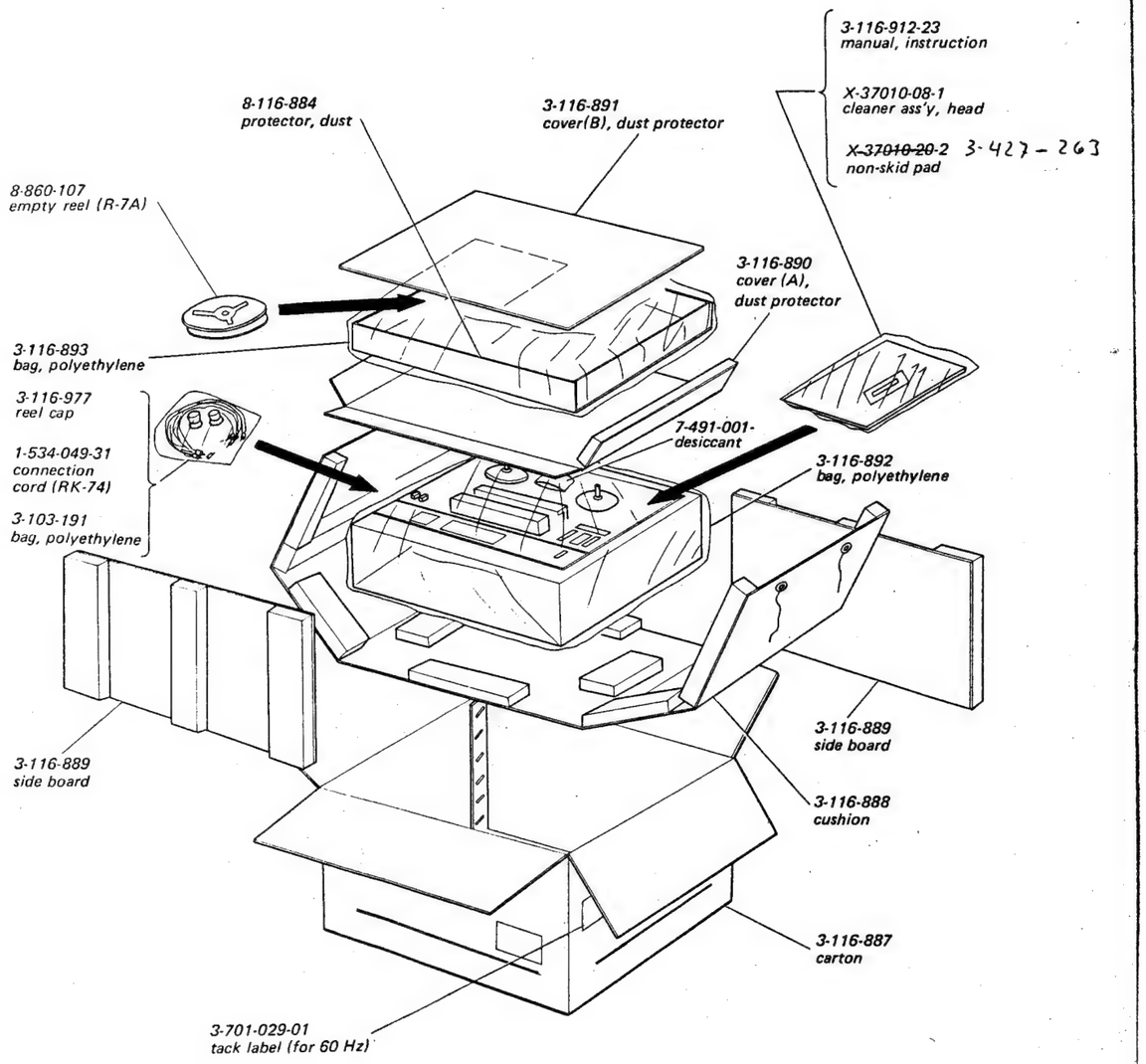
19-3. Chassis — bottom view —




⊕ P 3 x 6
SW 3 ϕ
⊕ B 2.6 x 5
SW 2.6 ϕ
E-3
3-427-263 felt, brake
3-427-206 band, brake
3-427-351 washer, fiber
3-427-312 lever (B), brake
3-427-322 brake spring (left)
3-116-977 reel cap
3-427-255- sheet, reel table
3-427-212 reel table
⊕K 3 x 8
3-427-319 drum, brake
3-116-835 rubber belt, counter pulley
⊖SC 4 x 6
3-427-311 lever (A), brake
3-427-321 brake spring (right)
3-427-103 spacer, brake band
3-427-297 stopper, plunger lock
W 3 ϕ
⊕ P 3 x 4
1-454-034 solenoid (roller)
3-427-318 stopper, L shaped
3-427-317 shaft, pressure adjusting
3-427-298 bracket, plunger lock
3-427-296 stopper, solenoid plunger
X-31168-23 joint ass'y
1-454-024 solenoid (lock)
3-427-313 pin (A), solenoid plunger
3-427-323 spring, solenoid
W 4 ϕ
N 4 ϕ
split pin 1 x 10
⊖SC 3 x 4
3-427-295- pull rod, plunger lock
3-427-294 sleeve, plunger lock
3-427-288 spring, brake plunger
3-427-103 spacer, brake band
X-34270-25 base ass'y, brake
⊕ P 4 x 6
SW 4 ϕ
1-454-021 solenoid (brake)
3-427-313 pin, plunger solenoid
Y-20410-11-5 counter, tape index
3-116-836 felt, vibration absorber
3-116-845 bracket, tape index counter
3-427-353 washer, fiber
X-31168-24 arm ass'y, direction change
3-116-837 leaf spring, reverse switch
3-427-323 spring, plunger
N 4 ϕ
3-427-172 shaft
3-116-853 button, tape speed selector
⊕ P 2.6 x 4
SW 2.6 ϕ
0-051-221 pad, knob
1-514-451 switch, tape speed selector
split pin 1 x 10
3-427-152 reinforcing plate (A)
3-430-155 retainer, microswitch
1-514-057-10 switch, instant stop
1-514-041 switch, play
⊕ P 2 x 4
SW 2 ϕ
W 2 ϕ
3-116-901 cover, direction change switch
3-427-146 bracket, direction change switch
3-427-237 knob, direction change
3-427-226 spring
3-116-839 bracket, rack mounting
3-427-313 pin (A), solenoid plunger
3-116-897 spring, direction change switch
1-454-021 solenoid (reverse)
3-116-896 stopper, direction change plunger
split pin 1 x 10
X-31168-27 holder ass'y, instant stop button
X-31168-26 button ass'y, instant stop
⊕ P 3 x 25
0-051-221 pad, knob
1-514-452 switch, direction change
1-514-415 switch, ESP ON/OFF
3-116-836 felt, vibration absorber
3-427-154 reinforcement angle
3-427-121 stopper, brake band
3-427-182 shaft with screw, plunger
3-116-838 holder, panel
3-427-192 supporter, head deck
3-116-894 supporter, head deck
3-427-229 spring (C)
lug 3 ϕ
3-001-707-03 retainer, wire
1-514-057-10 switch, stop
⊕ P 3 x 15
1-514-057-10 rewind switch
1-514-057-10 switch, F.F.
1-514-057-10 switch, play
3-427-130 bracket, microswitch
3-427-180 spacer, stopper holding
3-427-181 screw, microswitch
X-31168-11 base plate ass'y
3-116-846 bracket (B), circuit board
X-31168-54 mounted circuit board, tape direction switch


3-412-078 terminal plate, head
⊕ P 2 x 8
⊕ P 3 x 6
SW 3 ϕ
3-427-408 retainer, lead wire
⊕ P 4 x 8
SW 4 ϕ
lug 4 ϕ
3-437-310 lug (C)
3-427-247 washer, nylon
3-427-314 shaft, capstan
3-116-810 spacer, head
8-822-542-22 head, rec./p.b. (forward); PP77-4202ND
⊕ P 2 x 4
SW 2 ϕ
W 2 ϕ
3-116-813 shield case
3-116-809 screw, head holding
⊖ SC 2.6 x 4
3-005-001-70 spring, head holding
⊕ P 2.6 x 8
3-116-814 plate, rec./p.b. head mounting
⊖ SC 3 x 3
3-437-307 tape guide retainer (C), upper
3-437-306 tape guide retainer (B), lower
3-116-808 tape guide retainer, bottom
3-103-238 spring (C), tape guide
8-826-629-23 head, erase : EF18-2902H2
⊕ P 3 x 6
SW 3 ϕ
3-116-815 plate, erase head mounting
SW 2 ϕ
⊕ P 2 x 4
X-31168-20 tension arm ass'y (right)
⊕ P 3 x 6
SW 3 ϕ
W 3 ϕ
⊕ P 2 x 4
SW 2 ϕ
W 2 ϕ
3-116-979- plate, terminal strips
8-822-542-21 head, rec./p.b. (reverse); PP77-4202C
3-427-353 washer, fiber
E-4
X-34270-26 pinch roller ass'y
3-437-309 tape receptacle (A)
3-116-812 shield plate, head
⊕ P 2 x 5
SW 2 ϕ
W 2 ϕ
3-116-823 bracket, pinch roller
3-437-171-02 bearing, roller
3-427-171 shaft, pinch roller
⊕ P 2 x 4
SW 2 ϕ
W 2 ϕ
3-437-170 roller, tape guide
3-116-820 pin, tape
3-116-811 stopper, tension arm
⊕ P 3 x 6
SW 3 ϕ
⊕ P 3 x 3
SW 3 ϕ
⊕ P 5 x 12
SW 5 ϕ
3-427-191 supporter (A)
3-427-196 supporter (B)
X-31168-21 tension arm ass'y (left)
⊕ P 3 x 6
SW 3 ϕ
8-826-629-23 head, erase; EF18-2902H2
3-116-816 plate, erase head mounting
3-116-819 shield plate, head
X-31168-16 head base plate ass'y
⊕ P 4 x 8
SW 4 ϕ
3-427-228 spring (B), shifter arm release
PVC tube
3-116-821 pressure arm, tape
SW 2 ϕ
N 2 ϕ
X-31168-14 shifter arm ass'y (left)
X-31168-12 shifter arm ass'y (right)
3-427-352 washer
E-4
⊕ P 2 x 4
SW 2 ϕ
W 2 ϕ
3-116-811 stopper, tension arm
3-116-822- spring, bar; tension arm
3-427-185 shaft, pinch roller arm
lug 3 ϕ
SW 3 ϕ
⊕ P 3 x 6
3-427-105 stopper, tension arm pulley
3-116-817 shaft, tension arm
SW 3 ϕ
⊕ P 3 x 4
⊕ P 3 x 6
SW 3 ϕ
3-116-817 shaft, tension arm
⊕ P 3 x 6
SW 3 ϕ
3-427-351 washer, fiber
X-31168-25 microswitch bracket ass'y (right), auto shut-off
E-3
3-427-205 arm, microswitch operating
⊕ P 2 x 5
SW 2 ϕ
3-427-177 pin, tape guide; with screw
lug 3 ϕ
3-427-227- spring (A), tension arm
3-427-102 plate, counter weight holding
3-427-207 arm,pinch roller
3-427-354 washer, fiber
E-5
⊕ P 2.6 x 12
1-514-231-21 switch, automatic shut-off (S306)
3-427-711 oil ring, capstan shaft
3-116-883 thrust washer, capstan shaft
X-34270-13 capstan metal ass'y
3-426-208 flywheel
3-427-102 plate, counter weight holding
3-427-177 pin, tape guide; with screw
lug 3 ϕ
3-427-227 spring (A), tension arm
3-427-217 pulley, tension arm
⊖ SC 4 x 4
3-427-197 shaft, counter weight
X-31168-22 microswitch bracket ass'y (left), auto shut-off
⊖ SC 3 x 6
3-427-351 washer, fiber
3-427-205- arm, microswitch operating
E-3
3-427-217- pulley, tension arm
⊖ SC 4 x 4
3-427-197 shaft, counter weight
SW 3 ϕ
⊕ P 3 x 4
3-427-105 stopper, tension arm pulley
1-514-231-21 switch, automatic shut-off (S305)
3-427-324 thrust washer
SW 6 ϕ
N 6 ϕ
⊖ SC 4 x 6
⊕ P 2.6 x 12

19-6. Packing


3-116-912-23
manual, instruction
X-37010-08-1
cleaner ass'y, head
X-37010-20-2 3-427-263
non-skid pad
8-116-884
protector, dust
3-116-891
cover(B), dust protector
8-860-107
empty reel (R-7A)
3-116-890
cover (A),
dust protector
3-116-893
bag, polyethylene
3-116-977
reel cap
1-534-049-31
connection
cord (RK-74)
3-103-191
bag, polyethylene
7-491-001-
desiccant
3-116-892
bag, polyethylene
3-116-889
side board
3-116-889
side board
3-116-888
cushion
3-116-887
carton
3-701-029-01
tack label (for 60 Hz)

ARCHIVEXEMPLAR

Complete Spare Parts List for TC-666D (UL & E)

(UL : Sets for USA
(E : Sets for other countries except USA and Canada)

June 1968

Ref. No.	Part No.	Description
A1	X-31168-11	Base Plate Ass'y
A2	-12	Shifter Arm Ass'y (right)
A3	-14	" " " (left)
A4	-16	Head Base Plate Ass'y
A5	-17	Reel Panel Ass'y
A6	-18	Front Sash Ass'y
A7	-20	Tension Arm Ass'y (right)
A8	-21	" " " (left)
A9	-22	Micro Switch Bracket Ass'y (left), auto shut-off
A10	-23	Joint, pinch lever and pinch roller plunger
A11	-24	Arm Ass'y, direction change
A12	-25	Micro Switch Bracket Ass'y (right), auto shut-off
A13	-26	Button Ass'y, instant stop
A14	-27	Holder Ass'y, instant stop button
A15	-28	Front Chassis Ass'y, amplifier
A16	-29	Bracket Ass'y, record mechanism
A17	-32	Cabinet Ass'y
A18	X-34270-25	Brake Ass'y
A19	-26	Pinch Roller Ass'y
A20	X-20319-01	Terminal Ass'y, earth jack
A21	X-34130-11	Button Ass'y, record
A22	X-34270-13	Capstan Metal Ass'y
1	3-116-801	Button, play
2	-802	Button, fast forward
3	-803	Button, rewind
4	-804	Button, stop
5	-805	Shaft, button
7	-807	Bracket, play, FF., fast rewind and stop buttons
8	-808	Tape Guide Retainer, bottom
9	-809	Head Adjusting Screw
10	-810	Spacer, head
11	-811	Tension Arm Stopper

Ref. No.	Part No.	Description
12	3-116-812	Head Shield Plate, below head
13	-813	Shield Case
14	-814	Head Mounting Plate, rec./p.b. head
15	-815	Head Mounting Plate (left), erase head
16	-816	Head Mounting Plate (right), erase head
17	-817	Tension Arm Shaft
18	3-420-102	Bracket, counter weight bar tension arm
19	3-116-819	Head Shield Plate
20	-820	Tape Shifter
21	-821	Tape Pressure Arm, shield plate
22	-822	Spring Bar, tension arm
23	-823	Bracket, pinch roller
24	-824	Head Cover A (large)
25	-825	Head Cover B (small)
26	-862	Bracket, front panel
27	-827	Rod, record mechanism
28	-828	Record Lever (B)
29	-829	Record Lever (A)
30	-830	Record Ornamental Plate
31	-831	Bracket, binaural jack
32	-832	Bracket, power switch
33	-833	Cushion, meter
34	-834	Bracket, meter
35	-835	Rubber Belt, counter pulley
36	-836	Felt, noise absorber
37	-837	Spring Board, reverse switch
38	-838	Holder, panel
39	-839	Bracket, rack mounting
40	-840	Sash, left side
41	-841	Sash, right side
42	-842	Jack Panel
43	-903 (UL) -914 (E)	Ornamental Plate, jack
44	-845	Bracket, tape counter
45	-846	Bracket (B), amplifier circuit board
46	-847	Foot, base plate
47	-848	Bracket, amplifier circuit board
48	-849	Bracket, power transformer
49	-850	Bracket, relay
50	-852	Shield Paper, pre-amplifier circuit board
51	-853	Button, tape speed selector
51-1	0-051-221-00	Silk Tape
51-2	3-001-707-09	Holder, capacitor

Ref. No.	Part No.	Description
52	3-116-883	Thrust Washer, capstan shaft
53	-885	Knob, record volume control
53-1	-886	Shield Paper, noise reduction circuit board
54	-869	Cover, jack
55	-894	Supporter, head base plate
56	-896	Stopper, direction change plunger
57	-897	Pressure Spring, direction change switch release spring (D)
58	-898	Helical Spring, record button lock
59	3-427-324-02	Thrust Washer
60	3-116-900-01	Sash, back
60-1	-00	" , front
61	-901 (UL) -915 (E)	Cover, direction change switch
	-902	Name Plate for UL
	-904	Insulating Paper A, silver
	-905	" " B, "
	-906	" " C, red
	-907	Bracket, insulating paper
62	3-427-103	Spacer, brake band
63	-105	Stopper, tension arm pulley
64	-121	Stopper, brake band
65	-129	Bracket, stop button
66	-130	Bracket, micro switch
67	-146	Bracket, direction change switch
68	-152	Reinforcing Plate, under reel tables
69	-153	Reinforcing Plate, panel
70	-154	Reinforcement Angle
71	-177	Pin with Screw, tape guide
72	-171	Shaft, pinch roller
73	-172	Shaft, tape guide
74	-180	Spacer, micro switch
75	-181	Screw, micro switch
76	-182	Shaft with Screw, plunger
77	-185	Shaft, pinch roller arm
78	-191	Supporter A, head housing
79	-192	Supporter, head base plate
80	-196	Supporter B, head housing
81	-197	Shaft, counter weight, tape guide
82	-205	Arm, micro switch operating
83	-206	Band, brake
84	-207	Arm, pinch roller

Ref. No.	Part No.	Description
85	3-427-208	Flywheel
86	-212	Reel Table, left and right
87	-215	Spacer, t=2mm, 6ø
88	-217	Pulley, tension arm
89	-226	Spring, direction change switch
90	-227	Spring (A), tension arm
91	-228	Spring (B), shifter arm release
92	-229	Spring (C), record button lock
93	-237	Knob, direction change
94	-247	Washer, nylon, capstan
95	-255	Sheet, reel table
96	-263	Felt, brake
97	-265	Felt (A), l=190mm
98	-266	Felt (B), l= 85mm
99	-288	Spring, brake plunger
100	-294	Sleeve, lock plunger
101	-295	Pull Rod, lock plunger
102	-296	Stopper, solenoid plunger
103	-297	Stopper, lock plunger
104	-298	Bracket, lock plunger
105	-311	Lever (A), brake
106	-312	Lever (B), brake
	-417	Oil Absorber
107	-313	Pin (A), solenoid plunger
108	-317	Shaft, pressure adjusting, solenoid plunger
109	-318	Stopper, L shaped, plunger pole
110	-319	Brake Drum
111	-321	Brake Spring (right)
112	-322	" " (left)
113	-323	Pressure Spring, solenoid plungers PM-503 (reverse) and PM-502 (pinch roller)
114	-351	Washer, fiber 4.2ømm, brake and tension arm
115	-352	" " 5.2ømm, shifter arm
116	-353	" " 6.5ømm, pinch roller
117	-354	" " 7.2ømm, pinch roller arm
118	-408	Retainer, lead wire
119	-409)	Motor Pulley, 60 Hz)
	-523)	" " , 50 Hz)
120	-410	Screw, motor retaining
121	-415	Fan, motor
122	-531	Bracket (B), mounted circuit board
123	-534	Foot Plate (B)

Ref. No.	Part No.	Description
124	3-427-314	Capstan Shaft
125	-711	Oil Ring, capstan shaft
126	3-442-022	Lamp Retainer
127	3-410-032	Power, cord; black
128	3-437-170	Roller, tape guide
129	-171	Roller Retainer, white
	-228	Insulator (A), mic jack
130	-229	" (B), mic jack; red
131	-306	Tape Guide Retainer (B), lower
132	-307	" " " (C), upper
133	-309	" " (A)
133-1	-310	" " (B)
134	-423	Insulator, rec. vol. button
135	-436	Insulator, binaural jack
136	3-430-167	Lever, record button
137	-169	Bracket, record lever
138	-199	Cushion (A), record button
139	-200	" (B), record lever
140	-212	Lock Rod, record lever
141	-171	Lever (A), rec./p.b. change
142	-172	" (B), " "
143	-155	Retainer, micro switch
144	3-409-108-01	Washer, reel panel; white
145	-191	Ornamental Washer, cabinet
146	-158	Helical Spring, lock
147	3-412-059	Ornamental Washer, reel panel
148	-078	Terminal Plate, head
149	3-103-912	Button Guard, instant stop
150	-103	Belt, capstan
151	-139	Hum-proof Band, capstan motor
152	-238	Spring (C), tape guide
153	-365	Bracket, hum-proof belt
154	3-401-100	Rubber, noise absorber
	3-422-204	Caution Label
155	3-444-042	Cloth, window cover; black, auto-reverse switch
	3-005-074	Thrust Washer
156	3-005-001	Adjusting Spring, head and record lock rod
	0-005-221	Pad, knob
157	Y-20410-11-05	Tape Counter Type XI
	1-534-049	Connection Cord, SONY RK-74
	3-401-193 (E)	Cotton Tape

Ref. No.	Part No.	Description
	3-116-912-21 (UL) -11 (E)	Instruction Manual " "
	7-491-001	Desiccant
	8-860-007	Reel, R-7A
	3-116-884	Dust Protector, DP-666D
158	3-427-419-01	Reel Cap
	3-793-010-20	Tape Talk
	-030-00(UL)	SONY Tape Booklet
	-044-21	Important
	3-796-111-11(UL) 3-793-009-11(E)	Inspection Card " "
	3-701-020	Bag, check sheet
	3-005-065 (E)	Wrench L Type 4ø
	X-37010-08(UL)	Ribbon Ass'y, head cleaning
	3-701-031 (UL)	Emvelope, IBM card
	-034 (UL)	Quality Control Card
	-035 (UL)	Warranty Card
	3-793-072 (E)	Voltage Indicating Card
159	1-507-188	Jack, type M-5 J102,202 microphone
160	-187	Jack, J104 binaural headphone-
161	1-514-306-21(UL) -306-11(E)	Switch, S304 power on/off
162	1-221-923	Variable Resistor, R122,222 200K ohms (C) record level control
163	1-524-051	VU Meter
164	1-518-051	Pilot Lamp, PL2 4.5V 40mA, record indicating
165	-082	" " PL1 2V 100mA, power indicating
	1-101-534-12	Encapsulated Component C-R, CP1 120 ohms+ 0.1uF
166	1-536-179-11	Terminal Strips, 1-L-1
167	1-514-415-21	Slide Switch, S601 S.N.R.

1. Pre-amplifier Section

1-538-810	Printed Circuit Board, preamplifier

Transistor

Q101,201	2SC631 or 2SC632
Q102,202	2SC631 or 2SC632
Q103,203	2SC633 or 6SC634
Q104,204	2SC633 or 2SC634

Ref. No.	Part No.	Description			
		Q105, 205		2SC633 or 2SC634 --------	
		Resistor, adjustable			
	1-221-401	10K ohms (B)			R117,118,119,207,208, 209 ----------
	-952	20K "			R124,125,224,225 -------
	-953	50K "			R137,138,237,238 -------
		Resistor, carbon			
	1-242-721	100K ohms	Noiseless	±5% RD½UR (ELR½)	R103,203
	-713	47K "	"	" " (")	R107,108,111, 207,208,211, 112,212 ---
	-705	22K "	"	" " (")	R115,215 ---
	-697	10K "	"	" " (")	R106,152,206, 252 -------
	-693	6.8K "	"	" " (")	R114,214 ---
	-689	4.7K "	"	" " (")	R104,204 ---
	-685	3.3K "	"	" " (")	R109,209 ---
	-681	2.2K "	"	" " (")	R101,201 ---
	-673	1K "	"	" " (")	R105,205 ---
	-729	220K "	"	" " (")	R116,216,142, 242 -------
	-723	120K "		" " (")	R132,232 ---
	-711	39K "		" " (")	R134,234 ---
	-707	27K "		" " (")	R128,228,141, 241 -------
	-689	4.7K "		" " (")	R145,245 ---
	-683	2.7K "		" " (")	R131,231 ---
	-681	2.2K "		" " (")	R136,236 ---
	-673	1K "		" " (")	R130,320,144, 244 -------
	-669	680 "		" " (")	R110,210 ---
	-663	390 "		" " (")	R135,235 ---
	-717	68K "		" " (")	R113,213 ---
	-730	240K "		" " (")	R129,229 ---
	-721	100K "	±10%	RD½UR	R133,233 ---
	-709	33K "	"	"	R139,239,143, 243 -------

Ref. No.	Part No.	Description			
	1-242-703	18K ohms	±10%	RD½UR	R121,221 -----
	-699	12K "	"	"	R146,246 -----
	-697	10K "	"	"	R127,227 -----
	-683	2.7K "	"	"	R140,240 -----
	-689	4.7K "	"	"	R126,226 -----
	-685	3.3K "	"	"	R150,250 -----
	-669	680 "	"	"	R102,202 -----
	1-244-681	2.2K "	±5%	RD½SR	R123,223 -----
		Capacitor, electrolytic			
	1-121-357	100uF	35WV		C127,111,211 -
	-290 -490	100uF	3WV		C103,203,135, 235 ---------
	-488 -352	50uF	10WV		C107,207,115, 215,120,220 -
	-472 -283	10uF	25WV		C101,201 -----
	-470 -282	10uF	12WV		C102,202,110, 210,123,223 -
	-462 -282	5uF	12WV		C121,221 -----
	-440 -279	1uF	25WV		C112,212,122, 222 ---------
		Capacitor, mylar			
	1-106-094 1-105-679	0.033uF	50WV	±10%	C124,224,125, 225 ---------
	1-106-086 1-105-675	0.015uF	"	"	C109,209,116, 216 ---------
	1-106-078 1-105-671	0.0068uF	"	"	C108,208,119, 219 ---------
	1-106-058 1-105-661	0.001uF	"	"	C126,226,104, 204 ---------
		Capacitor, mica			
	1-107-059	180PF	500WV		C118,218 -----
	-015	47PF	"		C106,206,117, 217 ---------

Ref. No.	Part No.	Description			
		Capacitor, polyethylene			
	1-129-123	470PF	50WV		C105,205 -----
		Capacitor, aluminum electrolytic			
	1-127-021	0.3uF	10WV	±20%	C113,213,114, 214 ---------
	1-409-083	Trap Coil, 200uH			L101,201 -----
	-130	" " 2mH			L103,203 -----
	1-407-173	Micro Inductor, 220mH			L102,202 -----
	1-513-236	Switch Slide, rec./p.b. change			S101,201 ---
		2. Headphone Amplifier Section			
	1-538-805	Printed Circuit Board, headphone amplifier -			
		Transistor			
		Q106,206	2SC633 or 2SC634 -------		
		Diode			
		D101, 201	1T22 ----------		
		Carbon, resistor			
	1-242-739	560K ohms	±5%	RD½UR	R147,247 -----
	-681	22K "	"	"	R148,248 -----
	1-221-962	2K " (B)	Adjustable		R149,249 -----
	1-204-315	120K "	±10%	R½	R312,314 -----
		Capacitor, electrolytic			
	1-121-282, -470)	10uF	12WV		C131,231 -----
	-440, -279)	1uF	25WV		C129,130,230, 132,232 -----

Ref. No.	Part No.	Description			
		Capacitor, mica			
	1-107-004	100PF	500WV		C128,228 -----
	1-409-094	Trap Coil 20mH			L104,204 -----
	1-141-034	Trimmer Capacitor 30 - 200PF			C133,233,134, 234 ---------
	1-427-217	Output Transformer 3K ohm : 8 ohm			T101,201-
168	8-831-634	Motor, capstan, HC-634D5 ----------			
169	8-336-624	" , reel table (left & right) UC-624R ---			
170	1-441-398	Power transformer, T302 ----------			
171	1-454-024	Solenoid Plunger, lock; PM-504 ----------			
172	1-514-415	Switch, slide; ESP, S402 ----------			
173	1-514-451	" , tape speed change, S505 ----------			
174	1-514-041	" , leaf, play, S303 ----------			
175	-452	" , direction change, S506 ----------			
176	-057	" , stop, play, fast forward. rewind, instatnt stop (S501,503,504,502, 401,507) ---------			
177	1-454-021, -034)	Solenoid Plunger, brake (PM-501), pinch roller (PM-502), reverse (PM-503)			
		Capacitor, electrolytic			
178	1-117-040	2+0.5uF	300WV	MP Type	C504 ---------
179	-049	3+1uF	300WV	MP Type	C501,502 -----
180	1-121-709	220uF	200WV		C307 ---------
181-1	-002	100uF	150WV		C306 ---------
-2	pending	47uF	160WV		C503 ---------
		Capacitor, polyethylene			
	1-129-181	750PF	125WV		C302 ---------
		Diode			
		FR1P			D506,507 -----
		Resistor, enameld wire wound			
182	1-205-439	50 ohms	15W		R313 ---------

Ref. No.	Part No.	Description		
183	1-227-105	390 ohms	H30	R501 ----------
184	-095	1.5K "	H20	R502 ----------
185	1-536-151	Terminal Strips, 2-L-2 ----------		
186	-150	" " , 2-L-1 ----------		
187	1-101-528	Encapsulated Component, 120 ohms+0.1uF 250WV, CP2,3,7,8 ---		
	-534	" " , 120 ohms+0.1uF 250WV, CP17 --------		

3. Power Supply & Bias OSC Section

	1-538-807	Printed Circuit Board, power supply and bias osc ----------
		Transistor
188		Q301,304,305 2SD28 ----------
		Q302,303 2SC633 or 2SC634 -----
		Diode
		D302,303 FR1P ----------
		D304,305 10D6 ----------
		D301 1S334 ----------
		Resistor, carbon
	1-242-691	5.6K ohms ±10% RD¼UR (ELR¼) R306,308 ---
	-697	10K " " " R302 -------
	-681	2.2K " " " R309 -------
	-669	680 " " " R305 -------
	-667	560 " " " R301 -------
	-625	10 " " " R303,304 ---
	-685	3.3K " " " R315 -------
	1-221-401	10K " (B), adjustable R307 -------
	1-433-125	Transformer, bias oscillator T301 -------
		Capacitor, electrolytic
	1-121-388	1000uF 35WV C305 -------

Ref. No.	Part No.	Description			
	1-121-297 -379)	200uF	25WV		C304 ----------
	-440, -279)	1uF	25WV		C303 ----------
		Capacitor, mica			
	1-107-221	560PF	±10%	1500WV	C301 -------
		Encapsulated Component			
	1-101-534	120 ohms+0.1uF		250WV	CP13,14,15, 16 -------
		Capacitor, mylar			
	1-105-841, 1-106-155)	0.047uF	±20%	50WV	C308 -------
	1-407-198	Micro Inductor		2.2mH	L302 -------
		4. ESP Section			
	1-538-806	Printed Circuit Board ----------			
		Transistor			
		Q401	2SC631 or 2SC632 ----------		
		Q402,403,404, 405,406,407	2SC633 or 2SC634 -------		
189		Q408	2SC867 ----------		
		Diode			
		D401,402	SH1S ----------		
		D403	1T22 ----------		
		Resistor, carbon			
	1-221-315	100K ohms (B), adjustable			R413 -------
	-401	10K " (B), "			R408 -------

Ref. No.	Part No.	Description				
	1-242-727	180K ohms	±5%	RD½UR (ELR½)	Noiseless	R407 -------
	-723	120K "	"	"	"	R405,404 ---
	-713	47K "	"	"	"	R401 -------
	-707	27K "	"	"	"	R403 -------
	-705	22K "	"	"	"	R406 -------
	-681	2.2K "	"	"	"	R402 -------
	-731	270K "	"	"		R411 -------
	-707	27K "	"	"		R422,410 ---
	-697	10K "	"	"		R412 -------
	-689	4.7K "	"	"		R409 -------
	-735	390K "	±10%	"		R417 -------
	-721	100K "	"	"		R416,418 ---
	-707	27K "	"	"		R414 -------
	-705	22K "	"	"		R415,420 ---
	-697	10K "	"	"		R421 -------
	-691	5.6K "	"	"		R419 -------
	-683	2.7K "	"	"		R423 -------
	-673	1K "	"	"		R426 -------
	-649	100 "	"	"		R424 -------
	-617	4.7 "	"	"		R425 -------
		Capacitor, electrolytic				
	1-121-488 -352	50uF		10WV		C409 -------
	-472 -283	10uF		25WV		C401,406 ---
	-440 -279	1uF		25WV		C405,407,408
		Capacitor, mylar				
	1-106-094 1-105-679	0.033uF	±10%	50WV		C403 -------
	1-106-058 1-105-661	0.001uF	"	"		C404 -------
	1-106-082 1-105-673	0.01uF	"	"		C402 -------

Ref. No.	Part No.	Description		
		Capacitor, silvered mica		
	1-107-005	220PF	500WV	C410 --------
		5. Direction Change Section		
	1-538-808	Printed Circuit Board, direction change ----		
	1-514-454	Switch, direction switch		S301 -------
	-453	" , " "		S302 -------
		6. Relay Block		
	1-538-809	Printed Circuit Board, relay ----------		
	1-536-179	Terminal Strip 1-L-1 ----------		
	3-006-707	Cramp, wire ----------		
		Diode		
		D501,502,503,504,505		FR1P -------
189-1	1-515-111	Relay 80 volts		RY501,502,503,504 ---
	-112	" 24 volts		RY301 ----------
		Resistor, wire wound		
	1-207-164	1K ohms	3W (4P)	R503 ----------
		Encapsulated Component		
	1-101-534	120 ohms+0.1uF	250WV	CP4,5,6,9,10,11,12 --
190	8-822-542-21	Rec./P.B. Head (reverse)		PP77-4202C ------
191	-22	" " (forward)		PP77-4202ND -----
192	8-826-629-23	Erase Head (forward)		EF18-2902H ------
193	1-514-231-21(UL), -11(E)	Switch, auto shut-off		S305,306 --------
194	1-507-255-11(E)	Socket, 11 pin, remote control		CNJ501 ----
195	1-532-099	Fuse (1.6A)----------		
196	-100	" (2A) ----------		
197	1-533-048	Fuse Post	F1,2	----------

Ref. No.	Part No.	Description
198	1-507-142	Pin Jack, 2P J101,201 (AUX) J103,203 (LINE OUT) ----------
199-1	1-509-015	AC Convenience CNJ301 ----------
199-2	-029 (E)	Rec./ P.B. Connector ----------
200	1-506-180 (E)	Short Plug, 11 pin, remote control CNP501 ---
201	1-534-330-62(UL) -241-14(E)	Power Cord ----------
202	1-514-415	Switch, slide, headphone level S102 -------
	1-509-064 (E)	Voltage Selector ----------
		Resistor, carbon
	1-244-629	15 ohms ±10% RD¼SR (R¼), binaural headphone R151,251 ----------

7. Noise Reduction Section

1-538-850	Printed Circuit Board, noise reduction -----	
	Transistor	
	Q604,605	2SC631 ----------
	Q601,602,603	2SC631 ----------
	Q606,607	2SC632 ----------
	Diode	
	D601,602	1T22 ----------
	Resistor, carbon	
1-242-661	330 ohms ±10% RD¼UR (ELR)	R620,623 ---
-673	1K " " "	R627 -------
-675	1.2K " " "	R621,624 ---
-691	5.6K " " "	R616 -------
-693	6.8K " " "	R625 -------
-697	10K " " "	R606,612,618, 622 -------
-701	15K " " "	R613 -------
-731	47K " " "	R602,628,608, 619 -------

Ref. No.	Part No.	Description			
	1-242-715	56K ohms	±10%	RD¼UR (ELR)	R626 -------
	-695	8.2K "	±5%	"	R605,611 ---
	-713	47K "	"	"	R604,610 ---
	-717	68K "	"	"	R614 -------
	-719	82K "	"	"	R615 -------
	-747	1.2M "	"	RD¼UR	R603,609 ---
	-707	27K "	±10%	"	R601,607 ---
		Capacitor, mylar			
	1-105-661	0.001uF	±10%	50WV	C609,610 ---
	-681	0.047uF	"	"	C606 -------
	-685	0.1uF	"	"	C605 -------
		Capacitor, electrolytic			
	1-121-343, -442	1uF		50WV	C601,602,603, 604 -------
	-283 -283, -472	10uF		25WV	C607,611 ---
	-295	200uF		6WV	C608 -------
		Resistor, carbon			
	1-242-689	4.7K ohms	±10%	RD¼UR	R617 -------
	3-116-887	Carton ----------			
	-888	Cushion (1) ----------			
	-889	" (2) ----------			
	-890	" (A), dust protector ----------			
	-891	" (B), " " ----------			
	-892	Bag, polyethylene for equipment ----------			
	-893	" " " dust protector -------			
	3-103-191	" " ----------			
	3-701-029-01	Label, 60 Hz ----------			
		Mounted Circuit Board			
A23	X-31168-51	Headphone Amp ----------			
A24	-52	E.S.P. Auto Reverse Amp ----------			
A25	-53	Bias OSC & Power Supply ----------			

Ref. No.	Part No.	Description
A26	X-31168-54	Tape Direction Change (head change-over SW)-
A27	-55	Noise Reduction ----------
A28	-56(E) -59(UL)	Relay ----------
A29	-57	Pre-amp ----------

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SERVICE BULLETIN

No. HTC-49-04-A
Model: TC-666D, TC-686D

Reissued by: T.Sakurai
Tech. Dept.
Antwerp, June 8, 1972

Subject: Change of record p.b. head.

Description: Rec. p. b. head PP77-4202C and D formerly employed in TC-666 are ceased manufacturing. PP102-4202 is employed instead.

Accompanied with this, spacer t=1.0mm is changed for t=2.5mm only for reverse side.

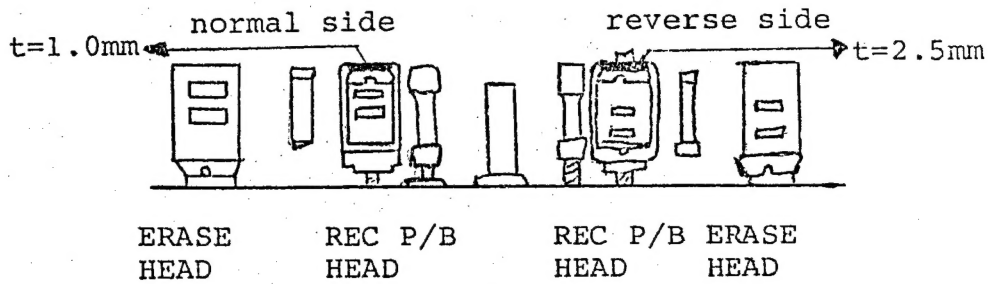
Description	Part No.
rec.p.b. head PP102-4202	82-9142-20
spacer t=2.5mm	3-116-973-00

NOTE:

1) PP77 type is employed in all TC-666D which have been manufactured.
2) PP102 type is employed in TC-686D from the following serial numbers.

   60HZ Serial No. 10318 and later
   50HZ Serial No. 10521 and later

3) Spare parts supply is available only for PP102 type.



TC-666D

1. Correction

Page 3 Page 5

Noise Reduction Circuit (See Fig. 1)

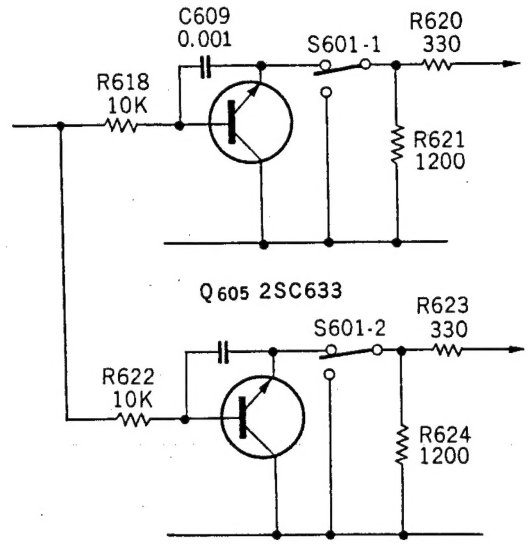
2. Change

For the sets Serial No. 12,781 and after

ESP Amplifier Circuit.

R408 10KΩ (B) → 2KΩ (B)
R417 390KΩ → 220KΩ

Fig. 1



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